THE IMPACT OF SAME-SEX MARRIAGE LAWS ON HEALTH INSURANCE COVERAGE IN SAME-SEX HOUSEHOLDS

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Dedication

This dissertation is dedicated to my parents, Gilbert and Xochitl Gonzales.

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1. Introduction

The purpose of this dissertation is to document the impact of state-level same-sex marriage laws on health insurance coverage in same-sex households. At the start of this dissertation project in 2012, only six states allowed same-sex couples to marry and, in accordance with the federal Defense of Marriage Act (DOMA), the federal government did not recognize any same-sex marriage licenses authorized by those six states. Now, in October 2015, all 50 states and the federal government recognize same-sex marriages following the Supreme Court's ruling in *Obergefell v. Hodges*, which upheld the right to marriage for same-sex couples. Additionally, a majority (60 percent) of Americans surveyed by Gallup believes that marriages between same-sex couples should be recognized by the law (McCarthy 2015). While the rapid diffusion and support of legal same-sex marriage across the United States reflects a major shift in attitudes and acceptance of lesbian, gay, bisexual and transgender (LGBT)[1] populations, the policy "experiments" that occurred one state at a time provided health policy researchers an opportunity to study how changes in federal and state policies affect health insurance coverage, among other health outcomes, in LGBT populations and, more specifically, cohabiting same-sex couples.

1.1 The Importance of State Policy Environments & Processes

This dissertation took advantage of the state-by-state rollout of same-sex marriage laws to examine how policy environments across the United States shape health

[1] This dissertation uses the acronym LGBT as an umbrella term for lesbian, gay, bisexual and transgender (LGBT) populations, but it is important to note that the LGBT population is not a single, monolithic group. Each subgroup is unique and may not be affected the same ways by same-sex marriage laws.

outcomes and access to care in vulnerable populations. Although current conceptual models (Aday & Andersen 1974; Aday & Andersen 1981; Andersen 1995; Phillips *et al.* 1998; Gelberg, Andersen & Leake 2000) in health services research position policy as a remote, distant force shaping access to care and the delivery of health care, a growing body of theoretical models in epidemiology (Krieger 2001; Krieger 2014), community-based participatory research (Cacari-Stone *et al.* 2014), and international health (Solar & Irwin 2010) recognize the importance of policy as a central determinant of health care, health services utilization and population health outcomes. Meanwhile, recent events in American policymaking require a reassessment of the relationship between state policy and health outcomes in the United States, particularly following the rapid ascension of state governments in health and social policymaking that followed welfare reform in the mid-1990s. Beginning with the early expansions in Medicaid to low-income families, children and pregnant women (Currie & Gruber 1996a; Currie & Gruber 1996b), states have been granted increasing levels of authority and power to determine the delivery of health care for vulnerable populations. For instance, welfare reform in the mid-1990s—which decoupled eligibility between Medicaid and cash assistance for low-income families—allowed states to customize their Medicaid programs through federal waivers. Following the defeat of comprehensive health care reform under President Bill Clinton, states were again granted authority in building and managing state-administered health insurance programs for low- and middle-income children under the Children's Health Insurance Program (CHIP). CHIP's reauthorization in 2009 further allowed the states to consider covering lawfully residing immigrant children and pregnant women without a 5-year waiting period required of other immigrants. Finally, and most recently, federal

health care reform under President Barack Obama, known as the Affordable Care Act (ACA), further promotes state health policymaking. Under the ACA, states are permitted to (1) expand the Medicaid program to families and individuals beneath 138% of the federal poverty guidelines (FPG), (2) create state-based health insurance exchanges (or marketplaces) to allow the sale of federally subsidized private health insurance plans for middle-income families, and (3) design and test new payment and service delivery models through financial awards and technical assistance from Centers for Medicare and Medicaid Services (CMS) Innovation Center. Given the growing importance of state roles in health policymaking, conceptual models in health services research should refocus the role of state policy environments and state policy processes in explaining population health outcomes.

Not only is state policymaking increasingly important in health care, but states are predominant actors in non-health policy arenas that directly and indirectly affect health outcomes and the social determinants of health. For instance, as this chapter suggests, more states have adopted policies that recognize LGBT families through laws establishing same-sex marriage, civil unions or domestic partnerships for LGBT couples. Meanwhile, states have taken steps to extend other financial and safety protections for LGBT populations, including the prohibition of discrimination in housing, employment and education for LGBT people. States are also leading policy actors in creating new laws that regulate other spheres of the social landscape, including the sale of firearms, the possession of medicinal and recreational marijuana and limits to abortions—all of which potentially affects population health.

This chapter presents a preliminary[2] conceptual model[3] that bridges the important relationship between state policy environments and health outcomes using themes from well-established theories of the policy process (Kingdon 2010; Sabatier & Weible 2014). The purpose of the conceptual model is not to definitively describe *why* public policies spread across the country, but rather to identify the contextual factors of state policy environments and to assess the policy-level determinants of individual and population-based health outcomes. This preliminary framework will guide ongoing and future research that acknowledges and highlights the important role of state policy processes in efforts to improve health and health care in priority populations.

1.2 A Conceptual Model Bridging the State Policy Process to Health Outcomes

Conceptual models (or conceptual frameworks) visually present a "paradigm though a combination of identified variables" which emerges from the "researcher's appreciation of reading, personal experience and reflection upon theoretical positions towards the phenomenon to be investigated" (Leshem & Trafford 2007, page 99). The conceptual model presented here was derived from observing, studying and reflecting on the rollout of same-sex marriage policies across the country. Interestingly, the conceptual model developed and presented here can be used for studying the rollout of state health policies (like state Medicaid expansions) or non-health policies that affect health outcomes across the country.

A simple and generalizable conceptual model is helpful for studying the relationship between the policy process and health outcomes. Although the predominant

[2] This conceptual model is "preliminary" in terms that it is in its initial state and will be tested, improved upon and retested throughout the next stages in my career.
[3] Conceptual model and conceptual framework are used interchangeably.

theories and conceptual models in health services research often situate policy as a remote, upstream factor affecting downstream health behaviors and health outcomes (Andersen 2008), these models do not take into consideration the dynamic nature of the policy process, which plays a critical role on access to care and health outcomes among vulnerable populations. For example, in the most recent version of Ronald Andersen's *Behavioral Model of Health Services Use* (Andersen 2007; Andersen & Davidson 2008), contextual and environmental factors—like health policy—are included in the conceptual model that explains access to medical care and health services utilization. Yet, the discussion of health policy gives the reader a sense that policies are simply accepted as they are—they are omnipresent, yet unchanging. According to Andersen, "health policies are authoritative decisions made pertaining to health or influencing the pursuit of health…in the legislative, executive, or judicial branches of government…[or] in the private sector by such decision makers as executives" (2007; page 6). From this perspective, policies are granted by authorities, and there is no discussion of the political and economic contexts or the impact of changing policies through the policy process and policy feedback loops.

The reality is that we live in a time where state governments are given significant responsibility and flexibility in designing and implementing national health policy. States vary dramatically in terms of their (1) economic conditions and capital resources: technical expertise, state revenue, available workforce, and infrastructure; (2) political climate: progressivity, Republican or Democratic control of government, trust in government; and (3) socioeconomic, demographic and health care needs of the population : age distribution, health and socioeconomic status. These factors, in addition

to federal policy, determine whether states take up certain policy issues and the direction of their policy choices. Recent examples include reforms in the legalization of medical marijuana, health insurance expansions, firearm regulation and same-sex marriage. The preliminary conceptual model presented in this chapter is designed to highlight the role of state policy contexts and state policy levers in efforts to improve health outcomes in targeted populations.

The preliminary conceptual model in Figure 1 was developed while observing the rollout of same-sex marriage across the United States during the writing of this dissertation, but the straightforward design is generalizable to other state policies influencing health outcomes. The conceptual framework largely draws on lessons from theories in the policy process and policy sciences (Sabatier & Weible 2014) with a special emphasis on policy innovation and policy diffusion at the state-level (Shipan & Volden 2012; Karch 2007). The conceptual model does not assert a new definition or conceptual model for the policy process. Rather, the conceptual model links what is known about the policy process and health outcomes, in order to formally identify the state policy process as a key factor in shaping and addressing population health outcomes (including health disparities). What follows next is a discussion of the conceptual model with examples from the diffusion of same-sex marriage. The examples from same-sex marriage are not intended to provide a comprehensive or historical account of the acceptance and dispersion of same-sex marriage policies across the American states, but to demonstrate the usefulness and applicability of the conceptual model for the study of policy impacts on health outcomes.

1.2.1 Problem Definition & Saliency

The preliminary conceptual model is illustrated in Figure 1.1. Moving from left to right, the "*Preliminary Conceptual Model Bridging the Policy Process to Health Outcomes"* begins with the first stage of the policy process, which is to identify a problem and to raise saliency, or awareness, of the issue. Problems can originate through special reports or research sponsored by the government, philanthropic organizations, academic researchers, think tanks or the media. Problems also elevate to the public agenda during times of crises, especially during environmental disasters and economic recessions (Kingdon 2010). Policymakers begin to recognize and frame the public problem as awareness spreads through the media or through *policy entrepreneurs*, who are researchers, interest groups and policy specialists ready to address specific problems with specific solutions at hand (Mintrom 1997). As the problem is defined and framed in the public discourse, alternative solutions are recommended. Several policy alternatives may float in the "primeval soup" of ideas and compete against one another in policy networks until a single solution is recommended and vetted through the political process (Kingdon 2010).

In the case of same-sex marriage, most states first adopted state-level same-sex marriage *bans* through legislation and amendments to their state constitutions after it was clear that the Hawaii Supreme Court would allow same-sex couples to marry in 1993 (Haider-Markel 2001). After Hawaii amended its constitution to prevent same-sex couples from marrying, the United States Congress followed suit and passed the federal Defense of Marriage Act (DOMA) in 1996, which prevented the recognition of married same-sex couples by the federal government. More specifically, DOMA defined marriage

between one man and one woman for federal purposes and allowed states to refuse the recognition of same-sex unions granted in other states (Pub. L 104-199). From the perspective of the federal government, same-sex couples were not eligible for any federal benefits or rights granted to married opposite-sex couples, including federal tax exemptions, social security and veteran benefits, citizenship associated with marriage (U.S. Government Accounting Office 2004). By 2004, 37 states adopted similar measures preventing same-sex couples from legally marrying within their state borders (Soule 2004).

Two North American court cases in 2003 (*Halpern v. Canada* in Ontario) and 2004 (*Goodridge v. Department of Public Health* in Massachusetts) reignited the public debate on banning same-sex marriages (Smith 2007). While opponents to same-sex marriage argued against same-sex marriage on moral grounds, proponents in both the United States and Canada framed same-sex marriage as a human rights issue. Under this social construct, same-sex couples were discriminated against and treated unfairly though historical, social and economic policies that affected and devalued the lives of LGBT individuals, families and same-sex households (Smith 2007). This human rights approach to framing same-sex marriage worked in 2004, when Massachusetts became the first American state to legalize same-sex marriage after the Massachusetts Supreme Judicial Court found the state's same-sex marriage ban unconstitutional under state law (Figure 1.2).

At the time (in 2004) only 42% of Americans believed same-sex couples should be recognized by the law (McCarthy 2015), but not allowing same-sex couples to marry increasingly became a civil rights problem (Warren & Bloch 2014). Over time, the

concept of fairness and inequality evolved through the courts, and civil unions and domestic partnerships (once considered a fair policy for same-sex couples) became symbols of inequality and second-class citizenry (NeJaime 2013). In 2008, the Connecticut Supreme Court ruled that *civil unions* offered to same-sex couples in the state did not provide equal rights and privileges similar to marriages (*Kerrigan v. Commissioner of Public Health* 2008), and the state of Connecticut was required to issue same-sex marriage licenses to same-sex couples beginning in November 2008. In the following year, Vermont became the first state to replace civil unions with legal same-sex marriage through the legislative process rather than through court decisions.

Meanwhile, researchers working in academia, the federal government and non-profit research centers began reporting on the federal costs associated with not recognizing same-sex unions (Congressional Budget Office 2004), the barriers to employment and health care found among LGBT people (Badgett 1995; Ash & Badgett 2006; Heck, Sell & Gorrin 2006), and the unequal tax burdens on LGBT families (Badgett 2007). For example, as discussed in later chapters, the federal government does not tax employer contributions to an opposite-sex spouse's health benefits, but under the federal Defense of Marriage Act (DOMA), a same-sex partner's health benefits were taxed as if the employer contribution was taxable income. LGBT workers were required to pay $1,069, on average, in federal income taxes when they added their same-sex spouse to ESI—which may have led some LGBT families to forgo employer-sponsored health insurance (Badget, 2010).

In terms of disparities in health and health care, the primary recognition of health disparities as a problem for LGBT people in the United States occurred in 2011, when the

Institute of Medicine issued its landmark report on *The Health of Lesbian, Gay, Bisexual, and Transgender People,* which noted that LGBT people experience worse physical and mental health outcomes and more barriers to medical care compared to their heterosexual and non-transgender counterparts, partially as a result of discrimination and stigma prevalent in society. In summary, the disparate treatment of LGBT people under federal and state policies was increasingly framed as a civil rights issue, and for public health researchers, detrimental and discriminatory public policies led to the development and persistence of LGBT health disparities (Meyer 1995; Meyer 2003; Hatzenbuehler 2009).

1.2.2 State Policy Diffusion

The preliminary conceptual framework presented here assumes that states are the primary source driving policy innovation given their resurgence in the policymaking process. Problems are recognized, which causes early adopters to act. States may act prior to or in response to federal action,[4] but typically, innovative states take action and adopt new policies to address a growing public problem—even when it is not permitted by the federal government. As more states recognize the problem, more states may pursue the same or similar policy objectives while some states lag behind. As states adopt a specific policy position over time, the adoption of the policy resembles an S-shaped curve, as depicted in Figure 1.1 (Gray 1973; Berry & Berry 2014). Policy adoptions occur infrequently in the early stages by leading states, but then the rate of adoption occurs very quickly until it tapers off again (Rogers 1962; Gray 1973; Boushey 2010).

[4] Some health policy research suggests that the states were leaders in expanding health insurance to children and adopting portability and pre-existing condition exclusions for people changing jobs before the federal government adopted the Children's Health Insurance Program (CHIP) and the Health Insurance Portability and Accountability Act (HIPAA) [Weissert & Scheller 2008].

There are four main reasons that policies diffuse, or spread, across the country according to political scientists studying the policy process: competition, learning, imitation and coercion (Shipan & Volden 2008; Shipan & Volden 2012; Berry & Berry 2014). First, interstate competition requires states to compete against each other for economic advantages, or to be more attractive to potential businesses and residents. Second, states learn from each other and adopt policies that they perceive as working in other states. States learn from each other in various ways. Some states learn through professional networks and technical assistance provided by professional associations and interstate collaborations, including the National Conference of State Legislatures (NCSL), the National Governors Association or the National Association of Medicaid Directors. Another source of policy learning occurs through the professional staff conducting research in state legislatures and executive agencies. In fact, the maintenance of research staff to assist state legislatures and executive agencies by providing research briefs and detailed reports on policy effectiveness is one reason that states have become more involved with policymaking in the 21st century (Shipan & Volden 2006).

At some point, state policies may be implemented out of coercion or imitation (Shipan & Volden 2008). The federal government can coerce states to adopt a policy by legally requiring them to do so or by providing states strong financial incentives to adopt a policy. For instance, a Supreme Court decision may require states to adopt a policy despite the state's unwillingness to do so, or federal matching funds for specific programs may lead some state leaders to adopt or expand federal-state programs. Finally, some states may imitate other states. States that lagged in adopting a policy may eventually

concede and imitate or copy other state policies, especially the states that are perceived as leaders in a particular policy area.

The diffusion of same-sex marriage in the United States followed an S-shaped pattern (Figure 1.2). The adoption of same-sex marriage at the state-level was slow at first, but more states increasingly learned from early adopters (Massachusetts, Connecticut, Vermont and Iowa) and adopted same-sex marriage through legislative action (Vermont, New Hampshire, New York and Washington between 2009-2012) or through a public referendum (Maine in 2012). Some states with similar political environments imitated and copied their neighbors (Delaware and Rhode Island in 2013) or from afar (Minnesota in 2013). Finally, states were coerced to legalize same-sex marriage beginning in 2014, when several federal district court decisions required states to recognize same-sex marriage. Finally, the lagging 13 states with same-sex marriage bans were required to issue same-sex marriage licenses following the landmark decision in *Obergefell v. Hodges* on June 26, 2015, in which the U.S. Supreme Court ruled that same-sex couples were guaranteed the right to marriage under the United States Constitution. The adoption of same-sex marriage was not smooth (Figure 1.2), or a perfectly shaped S. Rather, the adoption of same-sex marriage was "chunky." In other words, the implementation of same-sex marriage occurred simultaneously among many states in single flashes of time, especially towards the end of the period when the federal government intervened.

1.2.3 Target Population Benefited or Burdened

As public policies spread across the country, these policies provide substantial and immediate benefits or burdens (Schieder, Ingram & Deleon 2014). State policies and

policy tools are designed to (a) extend tangible benefits to targeted populations, such as cash and nutritional assistance, tax relief or health insurance coverage, or (b) extend incentives to change behaviors of targeted populations (Scneider & Ingram 1990). Alternatively, state-level policies can also create substantial burdens to target populations. For instance, states can adopt demanding sanctions, such as strict work requirements and time limits on public programs, in states where welfare recipients are perceived to be free-loaders (Soss et al. 2001).

The diffusion of same-sex marriage, provided immediate benefits and incentives to the targeted LGBT population, particularly after 2013, when the United States repealed Section 3 of the federal Defense of Marriage Act (DOMA), which restricted federal benefits to married opposite-sex couples because marriage was defined as a union between one man and one woman. Same-sex couples living in states that legalized same-sex marriage were immediately eligible to marry and gain all the rights, benefits and protections afforded to married opposite-sex couples. For example, after Section 3 of DOMA was repealed in June 2013, married same-sex couples qualified for roughly 1,138 federal provisions under the U.S. Code in which marital status was used to determine federal benefits and privileges (Government Accounting Office 2004). Some of these benefits included tax exemptions for married couples, eligibility for public programs, and benefits for veterans, government employees and their families.

1.2.4 Short-Term and Long-Term Health Outcomes

State policies extend benefits and burdens to target populations, which in turn, shape short-term and long-term health outcomes. State policies may extend tangible benefits, such as health insurance or cash, housing and nutritional assistance. Some

benefits (health insurance or immunizations) may directly improve access to medical care or population health outcomes. State policies aimed at improving access and reducing health care cost may have far-reaching impacts on the short-term and long-term health outcomes of targeted populations.

Other benefits may have positive spillover effects on the health of its recipients and their families (Ploeg 2009), especially if they improve the social determinants of health which are the conditions we live, learn, work and play (Robert Wood Johnson Foundation 2010). A growing body of research in this policy area, called "*Health in All Policies,"* recommends a "collaborative approach to improving the health of all people by incorporating health considerations into decision-making across sectors and policy areas" (Rudolph, Caplan, Ben-Moshe & Dillon 2013, page 6). The *Health in All Policies* approach focuses on the intersection of public policy and health outcomes to develop public policies that promote better health. One example of using *Health in All Policies* in a non-health policy area includes the strategic plan by the Department of Housing and Urban Development (HUD), which emphasizes "housing as a platform for improving the quality of life" (Bostic, Thornton, Rudd & Stemthal 2012).

Same-sex marriage may be another example of a *Health in All Policies* practice. Legalizing same-sex marriage—a non-health related policy—has the potential to impact short-term and long-term health outcomes in LGBT people (Buffie 2011). First, the short-term impacts of legalizing same-sex marriage for LGBT people include broader health insurance coverage, or more specifically, expanded access to employer-sponsored health insurance for same-sex partners and children of LGBT workers. After states authorize same-sex marriage, "fully-insured" employers are required to extend employer-sponsored

insurance (ESI) to legal dependents. Gaining health insurance improves access to health care and the maintenance of preventive and primary health services, which may improve long-term health outcomes (Gallo et al. 2013; Miller & Wherry 2015).

Meanwhile, legalizing same-sex marriage may also have health impacts outside of the formal health care system and through social processes associated with marriage. Public health research consistently finds that married people live happier, healthier and longer lives. Married people are more likely to enjoy better physical and mental health compared to their unmarried counterparts, and they are less likely to be heavy alcohol drinkers and cigarette smokers (Wood, Goesling & Avellar 2007), perhaps because they have spouses to monitor and deter negative health habits (Umberson 1992). Indeed, early qualitative research on health behaviors among lesbian and gay couples suggests that members in same-sex relationships cooperatively work to monitor each other's negative health habits (Reczek & Umberson 2012).

Finally, legalizing same-sex marriage may improve mental health outcomes through the reduction of minority stress, or the chronic stress associated with being a member of a marginalized minority group (Meyer 1995; Meyer 2003; Hatzenbuehler 2009). Early studies conducted in states adopting same-sex marriage have found some improvements in mental health among LGBT adults. For instance, one study in Massachusetts followed a group of gay and bisexual men before and after same-sex marriage was implemented in 2004 and discovered that these men were less likely to need a mental health or medical care visit after same-sex marriage was legal (Hatzenbuehler *et al*. 2012). Another study found lesbian, gay and bisexual (LGB) adults marrying after the California Supreme Court ruled in favor of same-sex marriage were

less likely to report psychological distress (Wight, LeBlanc & Badgett 2013). The following chapters in this dissertation document the role of same-sex marriage laws on health insurance coverage in same-sex households.

1.2.5 Political Climate

There are four factors in the preliminary conceptual model that affect the types of policy choices states pursue and the acceleration of policy diffusion across the country: (1) the political climate; (2) economic conditions, resources and infrastructure, (3) federal policy; and (4) demographic and health needs. First, *political climate matters*, both within the state and nationally. The policy options states pursue—if policymakers are interested in addressing problems at all—are customized to fit the state political environment, which includes the political ideology of the state, the timing of state elections, and the influence of state interest groups. Not only do state policymakers customize policies that best fit the political ideology of their state based on how conservative or liberal voters are, particularly if they intend to win reelection, but state lawmakers also look to other states with similar political ideologies for ideas and policy recommendations (Grossback, Nicholson-Crotty & Peterson 2004).

The national political climate may also lead governors and state policymakers to consider new ideas and policies over time—sometimes unexpectedly. The national mood, which "refers to the notion that a fairly large number of individuals in a given country tend to think along common lines" (Zahariadis 2014; page 34), is heavily monitored by public opinion polls. Policymakers may decide which policy issues to take up and which policies to consider by whether or not public opinion polls indicate whether voters find a

policy position favorable. Based on positive or negative feedback from public opinion polls, policymakers either promote certain policies or restrain their support for others.

Additionally, state lawmakers support policies that have the support of powerful interest groups. The role of interest groups is extremely important. Interest groups can mobilize policy networks and social movements to support the adoption of a policy, or conversely, interest groups can build a national or state coalition to prevent the adoption of policy. Finally, state elections influence the policy diffusion process. Not only can endorsing a policy position improve (or weaken) a policymaker's prospects of election or re-election, but national elections can change the tide in Washington and introduce a new administration with its own policy agenda and policy preferences.

In regards to banning and legalizing same-sex marriage across the country, interest groups have played a critical role. A strong national collation of interest groups, led by religious conservative groups, helped diffuse same-sex marriage bans across country in the 1990s (Haider-Markel 2001). Interest groups were able to coalesce their financial resources and political networks with citizen ideologies against same-sex marriage to ban the policy one state at a time through legislative action and voter referendums (Lewis 2011; Lupia et al. 2010), especially after the passage of the federal Defense of Marriage Act (DOMA) in 1996 (Soule 2004) and again during the 2004 presidential election when President George W. Bush won reelection based on a family values campaign (Lewis 2005; Smith, DeSantis & Kassel 2006).

However, national public opinion on same-sex marriage shifted very rapidly. In 2008, only 40% of Americans supported same-sex marriage (McCarthy 2015), and the 11 states with the highest levels of support for same-sex marriage legalized same-sex

marriage or marriage-like policies (e.g. civil unions or domestic partnerships) for same-sex couples (Lewis & Soo Oh 2008). Public opinion continued to grow in support of same-sex marriage, both nationally (McCarthy 2015) and in Congress (Theriault & Thomas 2014), and by the time the Supreme Court required all states to recognize same-sex marriage in 2015, the national mood was leaning towards the adoption of same-sex marriage. Thirty-seven states had already adopted same-sex marriage, and approximately 60% of Americans supported the legal recognition of same-sex couples (McCarthy 2015).

1.2.6 Economic Conditions, Resources & Infrastructure

State policymaking is also contingent on economic conditions, especially if a policy requires extensive financial support and resources to implement. Several studies have demonstrated that economic factors, such as income and wealth per capita, are strongly associated with policy innovation (Berry & Berry 2014) and the generosity of public programs extending assistance to targeted populations (Kousser 2002). While the fiscal health of a state is important for innovating and adopting distributive policies, people living in wealthier states may demand governmental services, including better quality schools, public hospitals and public transit (Borcherding & Deacon 1972; Berry & Lowery 1987). Additionally, economic conditions are also important for setting the policy agenda. For instance, Americans most often cite economic problems as the most important problem in public opinion polls (Gallup 2015), leaving less room for social problems to rise to the agenda.

Another factor that affects whether states are early adopters of highly technical and complicated policies depends on the professionalization of the state government. State governments that compensate their legislators higher incomes (and attract qualified

and skilled people into government), meet more frequently and in longer legislative sessions, and maintain a regular staff of researchers in the legislative and executive branches are better positioned to address technical problems compared to states without these resources and infrastructure (Shipan & Volden 2006; Shipan & Volden 2012).

One other aspect of economic conditions is the role of the private sector in addressing public problems. In his book, *The Divided Welfare State*, Jacob Hacker (2002) argues that employers in the United States play an important role in providing social insurance, including health insurance and retirement pensions. Since employers in the United States receive substantial federal and state tax exemptions for providing health insurance and retirement pensions to working Americans, state governments have fewer incentives to provide similar and duplicative public programs. Instead, state and federal policymakers are more likely to subsidize and incentivize private market actors to fill gaps in social insurance.

There are some examples in which economic conditions and private market actors have affected the passage of same-sex marriage laws across the country. First, private market actors have been important for the expansion of same-sex marriage across the United States. For instance, as public opinion shifted in favor of same-sex marriage, more private-sector companies publicly endorsed same-sex marriage and treat their LGBT workers equally as their heterosexual and non-transgender workers. In the 2015 Supreme Court (*Obergefell v. Hodges*) case authorizing same-sex marriage across the country, 379 employers from diverse industries (including Coca-Cola, Google, Target, Nike and The Walt Disney Company) submitted an amicus brief to the court arguing that same-sex marriage bans were detrimental to the economy, "impose[d] an added economic burden

on American businesses" and impaired "business interests and employer/employee relations" (Brief of 379 Employers and Organization Representing Employers 2014).

Additionally, a growing number of private-sector companies extended health benefits to same-sex partners of LGBT workers and adopted non-discrimination polices protecting LGBT workers. According to the 2014 Employer Health Benefits Survey conducted by the Kaiser Family Foundation and the Health Research and Educational Trust, 39% of private-sector firms offered health benefits to same-sex domestic partners in 2014, which was up from 22% in 2008. Thus, employers have played an important role in advancing LGBT equality in the workplace and public policy.

1.2.7 Federal Policy

Federal policy influences state policy in two ways. First, federal and state governments learn from each other and may adopt each other's policy positions (Weissert & Scheller 2008). States can adopt other state policy through horizontal policy adoption, or a state government may adopt a federal policy (or vice versa) through *vertical policy adoption*. Therefore, states may look to the federal government for policy ideas and solutions. When federal policy recommendations are not be politically feasible at the national level, some states may borrow these ideas and adopt these policy measures. In other cases, states may replicate or imitate federal policies to reinforce a specific policy at the state level. When the federal government fails to act on a problem, particularly during periods of divided government, states may take on issues on their own.

Second, federal policy may accelerate or impede the passage of policies across the states. When the federal government intervenes, policy diffusion at the state level accelerates when the federal government (1) provides resources and incentives to

overcome the financial and political barriers to adoption or (2) coerces the states to adopt a policy through executive, legislative or judicial decisions. Meanwhile, national intervention can impede policy diffusion if federal policy creates additional obstacles and costs for states to adopt the policy (Karch 2006).

Federal policy was instrumental to the diffusion of both same-sex marriage bans and same-sex marriage adoptions. For example, the federal Defense of Marriage Act (DOMA) was adopted by Congress in September 1996. Many states sensed the urgency to adopt and imitate similar statutes, and by the end of 1997, 27 states adopted state-level DOMA laws defining marriage between one man and one women. Meanwhile, following the Supreme Court's decision to overturn parts of DOMA in *United States v. Windsor* in 2013, more states rapidly adopted same-sex marriage through legislative action (Delaware, Hawaii, Minnesota, and Rhode Island) and, in more conservative states, without challenging court decisions (New Jersey and New Mexico). Finally, the remaining 13 states without same-sex marriage were coerced to implement the policy following the 2015 Supreme Court ruling in *Obergefell v. Hodges* (Figure 1.2). Thus, federal policy likely accelerated the diffusion of same-sex marriage each time the federal government intervened.

1.2.8 Demographic & Socioeconomic Structures & Health Needs

State policies are also determined, in part, by the demographic and health needs of the individual states. That is, states may customize their policies and programs to fit the demographic needs of their state populations, including the age distribution, racial and ethnic composition, and the socioeconomic and health status of the state's residents. For example, the states most likely to initially expand successful Children's Health Insurance

Programs (CHIP) were states with the highest uninsurance rates among low-income children (Volden 2006). Meanwhile, state legislatures may consider using budget surpluses to address the economic, health and social needs of the state population during healthy fiscal periods. Although most states will save their budget surpluses in "rainy day funds," some states may use excess revenue to expand educational opportunities for low-income children or add specific health care services in the Medicaid program for low-income families (Kousser 2002).

Not only may the demographic structure and health needs of a state drive state policymaking, but the impact of state policies on short- and long-term health outcomes may be limited by the underlying demographic, social and health structures already present in society. Medical sociologists (Berkman & Kawachi 2000) have well-documented the social and economic conditions related to the formation and perseverance of disparities and differentials in health and health care, including (but not limited to) discrimination, socioeconomic position, social networks, family structures, and the social construction of race/ethnicity, gender and sexual orientation. Each of these factors work together to impair health in vulnerable populations.

While legalizing same-sex marriage may improve health outcomes, the underlying demographic and socioeconomic structures may prevent some subpopulations within the LGBT population from benefiting from the advantages associated with legal same-sex marriage. While sexual orientation represents one identity, LGBT people come from all walks of life and also represent various communities of color, gender identities and expressions, and the complete spectrum of socioeconomic status. The LGBT individuals at the intersections of multiple marginalized identities (Bowleg 2008; Bowleg

2012), particularly those from disadvantaged populations may lack the resources, social networks, or power to take advantage of same-sex marriage policies (Phelan, Link & Tehranifar 2010). For example, wealthy and advantaged LGBT subpopulations may benefit from same-sex marriage while other subgroups, including LGBT people of color or low-income LGBT couples, may not be affected by same-sex marriage, be able to take full advantage of the rights and privileges associated with same-sex marriage, or face other circumstances that prevent them from acting on same-sex marriage.

1.2.9 Policy Feedback

An important characteristic of the policy diffusion process includes learning from other states and the federal government through the policy feedback mechanism. The conceptual model in Figure 1.1 reconnects health outcomes back to the policy and political process. However, the arrow pointing away from health outcomes to the shaded box suggests that the health outcomes lead to changes in the state policy process (or problem definition, economic conditions, political climate and federal and state policy). In the words of Paul Pierson, the "effect becomes the cause" (1993, page 595), and, thus, health outcomes may reshape the policy process and how problems are framed and addressed. For instance, the policy feedback process can rebalance the power of groups and how health problems are defined over time. The example of national health insurance reform provides a useful example here. Although the United States never adopted a compulsory health insurance system, incremental expansions over time to the elderly, children and pregnant women made the political climate and policy process more difficult to adopt health insurance expansions for working-age childless adults—who may be perceived as undeserving of public assistance.

Research on the policy feedback mechanisms surrounding same-sex marriage has not been explored much given the very recent diffusion of same-sex marriage across the country, but early observations suggests that the debate over adopting same-sex marriage rather than civil unions or domestic partnerships for same-sex couples may have changed as more states legalized same-sex marriage, since civil unions and domestic partnerships were increasingly framed as unequal to the status of same-sex marriage (NeJaime 2013). Now that same-sex marriage is the law of the land, LGBT advocates and policymakers may seek to adopt other state policies limiting discrimination in employment, public accommodations and housing for LGBT people (Jones 2015) or the specific inclusion of transgender populations in anti-discrimination policies (Allen 2015).

1.3 Other Applications of the Conceptual Model in Health Policy

One value of the preliminary conceptual model presented here is its adaptability to other public policies at the state level that public health researchers and policymakers are interested in researching. In other words, the conceptual model can be applied to other situations and policy innovations spreading across the country, including firearm regulation, the adoption of medicinal and recreational marijuana and the expansion of health insurance coverage occurring at the state level. For example, the process in which Medicaid expansions expand across the country can be studied from the perspective of the policy diffusion process using the preliminary conceptual model. The Affordable Care Act (ACA) allows states to expand Medicaid to individuals and families beneath 138% of the federal poverty guidelines (FPG). Health policy researchers interested in documenting the short- and long-term health outcomes or exploring how and why states

adopt the ACA's Medicaid expansion might consider adopting the preliminary conceptual model in their research.

Documenting improvements in health outcomes is important, not just for research, but also for the policy process. If policies operate as expected at the state level, similar policies may be considered in other states or by the federal government. For instance, expansions in Medicaid for children (Currie & Gruber 1996a; Lo Sasso & Buchmueller 2004), pregnant women (Currie & Gruber 1996b; Dubay & Kenney 1997), parents (Aizer & Grogger 2003; Hamersma & Kim 2009) and childless adults (Long, Zuckerman & Graves 2006; Long & Stockley 2011); requirements for employers to cover young adults until the age of 26 (Monheit *et al.* 2011); and insurance mandates for specific screenings and treatment (Gruber 1994) each occurred at the state level before federal mandates were adopted.

1.4 Next Chapters in the Dissertation

The following chapters include three papers that analyze different aspects of same-sex marriage laws at the state level and their association with short-term health outcomes, specifically employer-sponsored health insurance coverage. Before introducing the three papers, chapter 2 discusses the challenges to establishing causality between same-sex marriage and health insurance coverage and the threats to internal and external validity encountered in this dissertation. Then, given these empirical limitations, the three papers illustrate how the passage of same sex marriage laws affect access to employer-sponsored insurance for a subset of targeted LGBT populations: adults in cohabiting same-sex couples. Using data from the American Community Survey (ACS), one of the leading data resources for measuring health insurance coverage and same-sex

couple households in the United States, this dissertation demonstrates that state policy environments extending legal protections to LGBT households were *associated* with narrower disparities in employer-sponsored health insurance for cohabiting adults in same-sex couples (chapter 3) and their children (chapter 4). The analysis in chapter 5 takes advantage of the policy "experiment" in New York to measure the potential *causal* impacts of legalizing same-sex marriage on employer-sponsored insurance for cohabiting adults in same-sex couples. Each chapter supports the conclusion that living in a state with same-sex marriage laws in place is associated with narrower s gaps in employer-sponsored health insurance for adults in cohabiting same-sex couples and their children.

Each chapter is also tied together by providing key lessons for the policy process. First, state policies can be customized; they are not monolithic laws that can be adopted and measured singularly and dichotomously (i.e. whether a state has adopted the policy or not). Instead, chapter 3 demonstrates that state policies, such as same-sex marriage laws, can take different forms and share similar outcomes. While some states legalized same-sex marriage, other states legalized civil unions and domestic partnerships. Results from chapter 3 illustrate that health insurance disparities for adults in cohabiting same-sex couples were smallest and similar in magnitude in states that legalized same-sex marriage *or* civil unions and domestic partnerships compared to states without these policies in place.

The policy message in chapter 4 is that targeted policies can have indirect effects. Not only is living in a state with same-sex marriage associated with reduced disparities for adults in cohabiting same-sex couples, but living in a state with same-sex marriage is also associated with reduced disparities for children with cohabiting same-sex parents.

Thus, the benefits of same-sex marriage, and potentially other state-level family policies, may spill over among other family members. Lastly, the policy lesson in chapter 5 demonstrates that state policies can have immediate impacts. Within one year following the adoption of same-sex marriage in New York, employer-sponsored health insurance increased for adults in cohabiting same-sex couples relative to adults in cohabiting opposite-sex couples, suggesting that same-sex couples potentially took advantage of health benefits very rapidly. Concluding comments and next steps in my research agenda are reserved for chapter 6.

Figure 1.1 The Preliminary Conceptual Model Bridging the Policy Process to Health Outcomes

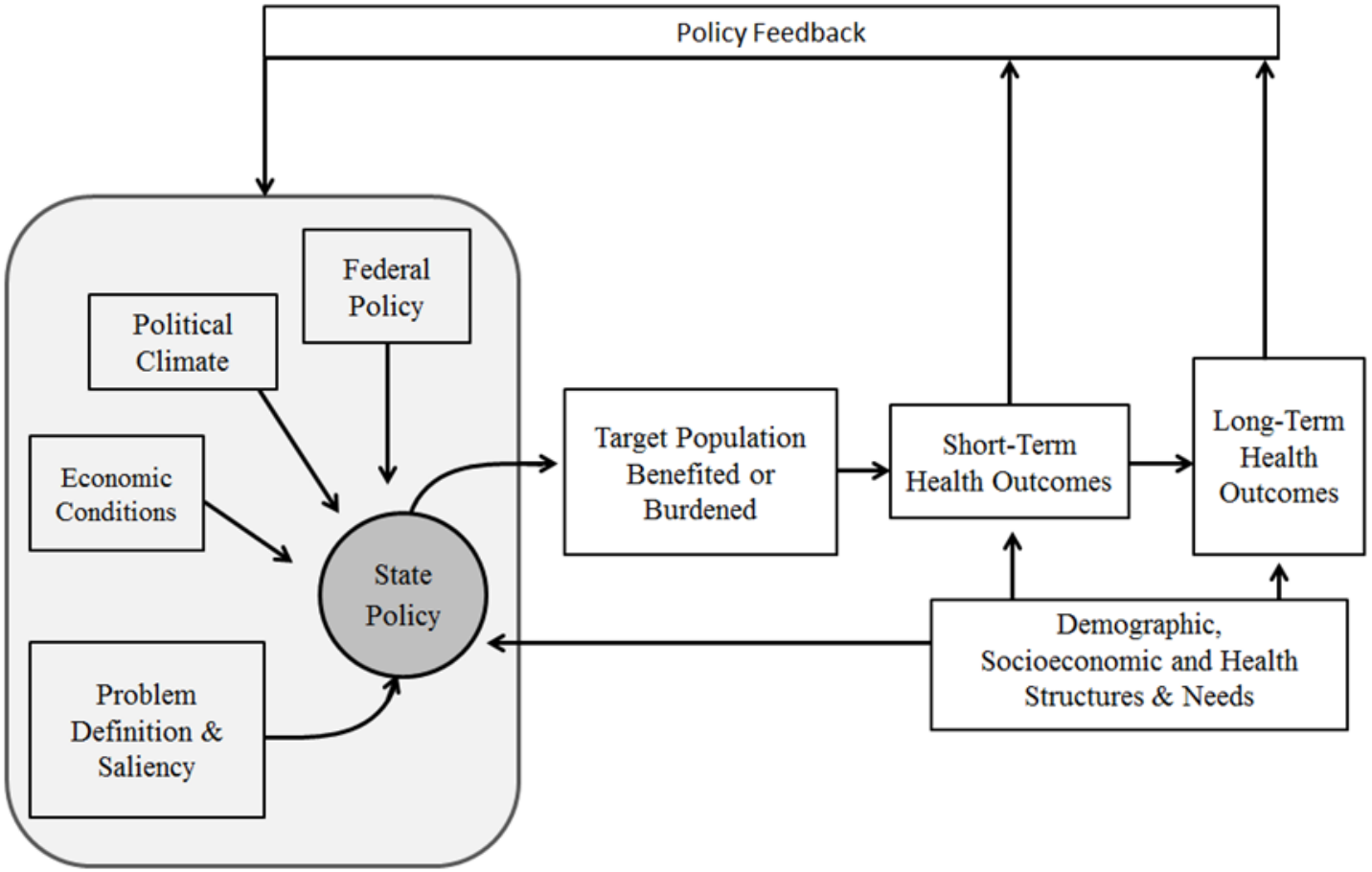
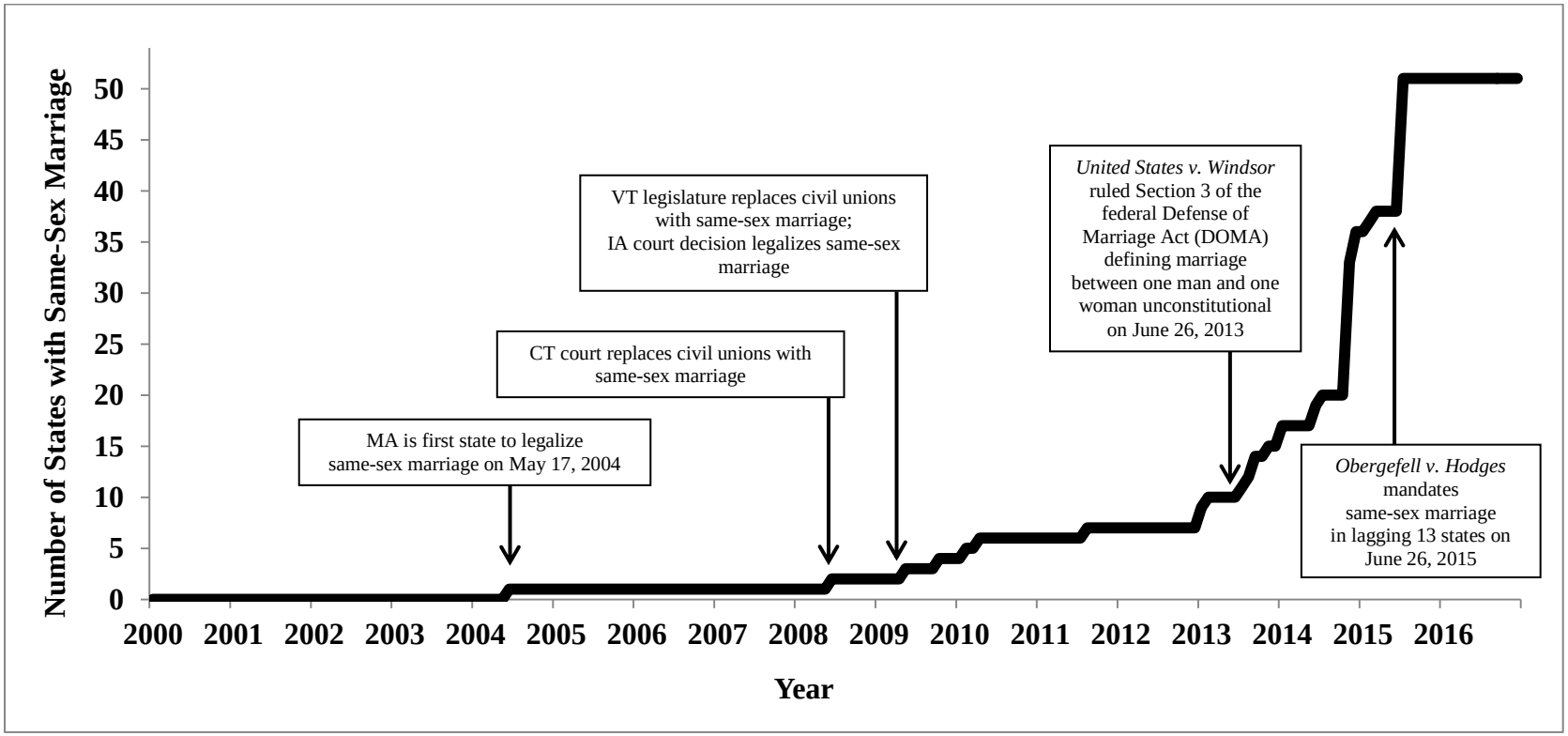


Figure 1.2 The S-Shaped Diffusion of Same-Sex Marriage Across the United States



Source: National Conference of State Legislatures, the Human Rights Campaign and various news sources.

2. Causality and Threats to Validity

One important goal in research is to establish a causal relationship between two phenomena in the natural or social domains, such that X causes Y. In health services research, determining whether a change in an independent variable (X) yields a change in the dependent variable (Y) allows researchers and policymakers to manipulate the independent variable in hopes that it will lead to desired individual and population-level outcomes in the dependent variable (Dowd & Town 2002). Thus, establishing causal relationships is important for the development and expansion of health policy and clinical guidelines, which can affect millions of people in a single, sweeping moment. This chapter discusses the requirements to conceptually and empirically establishing causality in social science research and the challenges to establishing causality between same-sex marriage laws and health insurance coverage among same-sex couples and their children. This chapter goes on to identify the threats to internal and external validity in conducting research on same-sex marriage laws and what those threats mean for the conclusions drawn from this dissertation.

2.1 Requirements for Establishing Causality

In order to establish causality, at least three criteria must be met. According to Shadish, Cook and Campbell (2002), "a causal relationship exists if (1) the cause preceded the effect, (2) the cause was related to the effect, and (3) we can find no plausible alternative explanation for the effect other than the cause. These three characteristics mirror what happens in experiments in which (1) [researchers] manipulate the presumed cause and observe an outcome afterward; (2) [researchers] see whether

variation in the cause is related to variation in the effect; and (3) [researchers] use various methods during the experiment to reduce the plausibility of other explanations for the effect" (page 6). In addition to these three primary criteria (temporal precedence, covariation and non-spuriousness), the discipline of epidemiology has adopted Bradford Hill's (1965) criteria for establishing causality, which would add that causality requires consistency across studies; a plausible mechanism based on the available literature; a dose-response gradient; a strong association (versus a modest association) between the cause and the effect; and specificity between one cause and one effect (Lucas & McMichael 2005; Hofler 2005).[5]

Bradford Hill also argued that experimental evidence was useful (but not necessary) to empirically establish causality, since experiments allow researchers to manipulate potentially independent causal variables while holding alternative explanations constant or limiting their influence on the dependent outcome. Experiments are the "gold standard" in the natural and social sciences for a few reasons. First, experiments, such as randomized control trials (RCTs), allow researchers to randomly assign participants to control and treatment groups, which prevents selection into treatment. RCTs also allow researchers to manipulate and measure the impact of a single, isolated treatment and to rule out alternative explanations for a causal relationship in a controlled environment.

Unfortunately, some research questions in the natural and social sciences do not allow researchers to conduct experiments or randomized control trials. For example, suppose that a researcher were interested in the effects of a biological agent on mortality

[5] To the best of my knowledge, no other disciplines in public health have adopted such a formal set of requirements for establishing causality.

outcomes. It is unethical to inject a biological agent, such as a disease, into a random subset of human hosts and deny them medication (particularly following historic atrocities like the Tuskegee experiment). In social science research, conducting experiments can also be financially, administratively and programmatically infeasible. For example, suppose that a random subset of an assigned community were given health insurance (i.e. the treatment group) and the remaining random subset were denied health insurance (i.e. the control group). Not only is denying health insurance from the control group potentially unethical, but the control group may seek health insurance and medical care through alternative sources (i.e. employers, charity care or though out-of-pocket spending). The control group may even obtain medical care without the researcher learning about their behavior, which will contaminate and bias the results of the study. In the policy sciences, randomly assigning a state or municipality to a treatment policy is also difficult. Researchers interested in measuring the effects of a policy change on social, economic and health outcomes are often unable to formulate a specific policy treatment and implement it on a specific and isolated population. Not only does policy formulation and implementation occur through political processes—which are correlated and endogenous to a region's demographic needs and political preferences—but study populations are mobile and may migrate into or out of the jurisdiction experimenting with a policy change.

Since experimental studies are often difficult to achieve (but not impossible to successfully conduct [Baicker *et al*. 2013]), health services researchers typically rely on quasi-experimental methods to empirically establish causal relationships between X and Y. Although quasi-experimental methods often share many characteristics of the

experiments they seek to mimic, including the identification of a treatment and control group, measurement before and after an intervention is applied, and the manipulation of an intervention at varying levels, quasi-experiments lack the random assignment and environmental regulation found in experimental research. These characteristics of quasi-experimental techniques make it difficult for establishing causality between X and Y, or in this dissertation, same-sex marriage laws and changes in health insurance coverage.

2.2 Challenges to Establishing Causality Between Same-Sex Marriage and Health Insurance Coverage

There are several challenges to conceptually and empirically establishing causality between same-sex marriage laws and health insurance coverage among same-sex couples (cohabiting lesbian, gay and bisexual adults). First, not all criteria for establishing criteria are easily met. Although, the first criteria required for causality (i.e. the cause precedes the effect) is conceptually simple to demonstrate. I take advantage of the timing same-sex marriage laws go into effect to establish that same-sex marriage laws were implemented prior to the measurement of health insurance among same-sex couples. However, data limitations can blur the ordering of events, especially in data sources like the American Community Survey (ACS) that do not provide detailed timing information, such as the day, month, or quarter of interview. When detailed temporal data are absent (and only the response year is available), demonstrating that changes in health insurance coverage followed the implementation of same-sex marriage can be difficult. This dissertation assigns treatment (residing in a state with same-sex marriage) after the policy change occurred. In chapter 5, this dissertation graphs health insurance coverage

among adults in same-sex couples annually to establish that increases in employer-sponsored health insurance followed the policy change, and thus meeting the first criteria.

The second criterion (i.e. the cause was related to the effect) can also be demonstrated relatively easily by determining whether same-sex couples are more likely to have health insurance when they live in states that allow same-sex couples to marry compared to states that ban same-sex marriage. Measuring the percentage of adults with health insurance by state policy environment (i.e. the state allows same-sex marriage or does not) allows researchers to identify an *association* between same-sex marriage laws and the health insurance coverage, which is performed in chapters 3 and 4. However, alternative explanations, such as selection issues, may drive these results—that is why the third criterion is crucial for establishing causality.

The third requirement for causality (i.e. no plausible alternative explanation for the effect other than the factor being examined) is difficult to establish in quasi-experimental studies. The threats to internal validity presented in the next section describe in more detail an exhaustive set (to the best of my knowledge) of alternative options that may explain changes in health insurance following the legalization of same-sex marriage. There are several reasons or threats to internal validity that alternatively explain an apparent causal relationship between same-sex marriage laws and health insurance coverage in same-sex couple households, including historical events occurring simultaneously, selection bias, and omitted variable bias. Each of these alternative explanations is described in the next section.

Drawing from Bradford Hill's criteria for causality, establishing that same-sex marriage laws affect health insurance coverage is limited when findings are not consistent

across studies, the literature does not establish a plausible mechanism, and there is limited evidence of a dose-response gradient or a strong association between same-sex marriage and health insurance status. Since same-sex marriage is a relatively new and recent phenomenon, there is very little research available to make comparisons across studies. However, previous research demonstrates that adults in same-sex couples are less likely to have employer-sponsored health insurance (Ash & Badgett 2006; Buchmueller & Carpenter 2010) and laws extending legal civil unions or domestic partnerships to same-sex couples are associated with increased health insurance coverage (Buchmueller & Carpenter 2012; Dillender 2014), all of which are consistent with the results in this dissertation.

Meanwhile, it can also be difficult to empirically demonstrate that same-sex marriage leads to increased health insurance coverage among same-sex couples. First, conducting experiments or RCTs is not feasible. Researchers are unable to assign a random subset of individuals to same-sex marriages, and researchers are unable to expose a random state or jurisdiction to a same-sex marriage law. These processes occur socially and politically, and thus, researchers are left with the quasi-experiments that occur when states take-up same-sex marriage on their own. However, the causal inferences made from these quasi-experimental studies rely on their ability to overcome threats to internal and external validity, or at the very least recognize the boundaries these threats place on the conclusions drawn from quasi-experimental research.

2.3 Threats to Internal and External Validity

Internal validity refers to whether a causal relationship between X and Y is established in a scientific study, and external validity refers to whether conclusions from

the study can be extrapolated to other populations, settings, treatments or outcomes. This section discusses the threats to internal and external validity that limit the ability to make causal inferences on the relationship between same-sex marriage laws and health insurance coverage and the ability to generalize the findings to other populations, outcomes and settings. Table 2.1 lists the array of threats to internal and external validity and their relevance to studying the impacts of same-sex marriage laws on health insurance coverage among same-sex couples in this dissertation. I address each threat to internal validity and then each threat to external validity below.

2.3.1 Threats to Internal Validity

Threats to internal validity are issues found in a study that prevent the researcher from making causal inferences, or that there is a causal relationship between X and Y. According to Shadish, Cook and Campbell (2002), threats to internal validity are the alternative explanations of a causal relationship, or "reasons to think that the relationship between [X] and [Y] is not causal, that it could have occurred even in the absence of the treatment, and that it could have led to the same outcomes that were observed for the treatment" (page 54). Adapted from Shadish, Cook and Campbell (2002) and Meyer (1995), an array of common threats to internal validity in experimental and quasi-experimental research are presented in Table 2.1 Some threats to internal validity provide limitations to drawing causal inferences in each chapter and should be explored in future analyses, while other threats to validity are directly addressed or present minimal concerns for using cross-sectional survey data to study the impacts of same-sex marriage laws.

First, *ambiguous temporal precedence* may pose a threat to internal validity. More specifically, the lack of clarity on which variable (X or Y) occur first may yield confusion about which variable is the cause and which is the effect. The inability of establishing X as a precedence to Y can lead to other alternative relationships between X and Y, such as reverse causality—or Y exerts a causal effect on X (Dowd & Town 2002). I take advantage of the specific date when same-sex marriage goes into effect to determine whether the policy change occurs prior to the measurement in health insurance status (in chapters 3-4) and changes in health insurance coverage (in chapter 5). Unfortunately, the public use American Community Survey (ACS) does not contain detailed information on when each responding household first received the ACS or submitted the ACS to the U.S. Census Bureau (note: the ACS does not contain day, month or quarter of response). In order to prevent any confusion on the timing of the same-sex marriage laws, each chapter in this dissertation assigns the treatment group as respondents living in states where same-sex marriage was previously implemented and available during the entire survey year. Assigning the treatment group as respondents exposed to same-sex marriage during the entire survey year may misclassify respondents exposed to same-sex marriage part of the year during implementation periods. For instance, in chapter 5, classifying respondents in the transition year into pre-reform baseline estimates will underestimate the impact estimates. This may not present a major concern, since the impacts of legalizing same-sex marriage may be lagged. Chapter 5 allows time—approximately a 6-month lag—for same-sex couples to enroll in employer-sponsored health insurance before measuring health insurance status in the treatment period. Other strategies to avoid confusion on the timing of same-sex marriage is to exclude respondents exposed to same-

sex marriage part of the year in transition or washout periods or to include them as partially exposed by assigning them to an implementation period in regression models (i.e. empirically, this is done by interacting treatment with the implementation time period). Future research should continue to investigate whether and how the timing of same-sex marriage laws affects health outcomes and whether there are impacts during implementation period that are different from post-treatment periods.

Second, *selection bias*—or systemic differences in characteristics found among the treatment group that may cause the observed effect—poses a major threat to internal validity. I am only able to identify the subset of same-sex couples that are in the relationship with the primary householder in the ACS, and this subsample of same-sex couples may be different from same-sex couples not cohabiting together or outside the relationship with the primary householder that are missing from this study. Thus, conclusions drawn from the following chapters can only infer to same-sex couples measured in the ACS: cohabiting same-sex couples in a relationship with the primary householder, or in other words, the householder and his or her same-sex partner. Additionally, the sample of same-sex couples self-reporting their relationships in the ACS may be systematically different than those not disclosing their relationships for fear of stigma and discrimination. Indeed, the sample of same-sex couples in the ACS report relatively high levels of education and income, which may lead to increased levels of employer-sponsored health insurance compared to same-sex couples not disclosing their relationship. To address these differences in observable characteristics, this study uses propensity score weighting methods (in chapter 5) to match the treatment and control group on observable characteristics, but other solutions to addressing selection may

include parametric sample selection models (Dowd & Town 2002; Dowd 2010). One challenge to using propensity score analyses is that propensity score studies only match the observable characteristics between the treatment and control groups; differences in *unobservable* characteristics may persist that could explain treatment effects.

Another threat to internal validity is *history*, or in social science research, the political, social and economic events that occur simultaneously with the treatment that may cause the observed effect. During the rollout of same-sex marriage laws, there were other social and economic events occurring simultaneously which may explain the observed effects. For example, the economic recession (December 2007—June 2009) and its subsequent economic recovery occurred at the same time several states implemented same-sex marriage (including Connecticut, Iowa, Vermont, New Hampshire, New York, Maine and Washington). Improvements in the economy during post-treatment periods may explain some of the increases in employer-sponsored health insurance over time for same-sex couples. Also occurring during this study period was the rapid shift in societal attitudes and opinion on same-sex marriage. For instance, in May 2008, only 40% of Americans believed that marriages between same-sex couples should be valid with the same rights as traditional marriages, but that figure increased to 50% by 2012 (McCarthy 2015). Historical changes in attitudes and opinion on same-sex marriage may affect who cohabitates, who gets married and who reports being part of a same-sex couple in federal surveys over time. While this dissertation acknowledges historical changes as a limitation, there are two traits to the studies in this dissertation that may minimize the role of economic recessions and shifting attitudes on same-sex marriage. First, this study does not use data with long time trends, which would allow more simultaneous events to

explain the findings. Previous studies have pooled data over very long periods of time from the 1997-2003 National Health Interview Survey (Heck et al. 2006), the 1996-2003 Current Population Survey (Ash & Badgett 2006), the 2000-2007 Behavioral Risk Factor Surveillance Survey (Buchmueller & Carpenter 2010) and the 2001-2007 California Health Interview Survey (Buchmueller & Carpenter 2012). Chapters 3 and 4 use data from the 2008-2010 ACS to measure disparities in employer-sponsored health insurance, and chapter 5 uses data from the 2008-2012 to measure the impacts of a same-sex marriage law on changes in health insurance coverage for same-sex couples. While these studies do not eliminate the role of the economic recession on differences in health insurance status, pooling fewer years of data may limit how many and how much historical events explain the findings. Future research should explore whether the findings in these studies are robust to eliminating the recession period (2007-2009) in the analyses or the inclusion of local area variables that explain historical changes, such as county-level unemployment rates and attitudes on same-sex marriage.

A fourth threat to internal validity is *maturation*, or naturally occurring changes over time that could be confused with a treatment effect. While this issue often relates to naturally and biologically occurring changes in individuals (e.g. growing older, wiser or stronger over time), this threat to internal validity also includes secular trends occurring in the community at-large and over time. One secular trend that has occurred over time has been the growing number of employers voluntarily offering health benefits to same-sex partners without being required to do so by law. According to the Mercer's National Survey of Employer-Sponsored Health Plans (2013), approximately 45% of firms with more than 500 employees offered same-sex domestic partner coverage in 2012, up from

32% in 2008. Therefore, increases in ESI among same-sex couples may be attributable to these secular trends rather than the legalization of same-sex marriage. Secular trends unique to the comparison group may also explain the results in this dissertation. For example, attitudes towards marriage among the comparison groups of opposite-sex couples were changing during the study period, as fewer opposite-sex couples are marrying and pursuing unmarried cohabitation instead (Pew Research Center 2010). Although the treatment and comparison groups in this dissertation may be exposed to similar secular trends, a robustness check to maturation is to test the analyses against alternative comparison groups, but sample sizes in the ACS may limit this approach.

A fifth threat to internal validity is *attrition*, or the loss of respondents to treatment or to changes in measurement over time that may produce artificial effects if that loss is systematically correlated with study conditions. Attrition is a major challenge to overcome in RCTs and in longitudinal surveys collecting data from individuals or households in multiple waves. Attrition is not a relevant concern when using repeated cross-sectional data like the ACS.

A threat to internal validity, however, involves imprecise *instrumentation*. The nature of a measure may change over time in a way that could be confused with treatment effect. This is especially problematic in this study, since measuring same-sex couples and sexual orientation is a very recent undertaking in social science. More federal surveys are adding and revising questions that measure same-sex households and sexual orientation—which may explain changes in outcomes over time. For example, the ACS redesigned the mail response questionnaire in 2008, which reduced the likelihood to misreporting information for each person in the household, including sex and relationship

to the primary householder (O'Connell, Lofquist, Simmons and Lugalia 2010). This dissertation does not pool data over the 2007-2008 ACS when instrument changes went into place. Meanwhile, there is also a growing body of research suggesting that a substantial number of same-sex couples are actually opposite-sex couples misreporting sex on the ACS questionnaire. Although this type of error occurs relatively infrequent among opposite-sex couples, a small number of miscoded opposite-sex couples can inundate and contaminate the relatively small sample of same-sex couples. Estimates vary, but between 20-57% of the national sample of married same-sex couples using the "husband/wife" designation and approximately 7% of unmarried same-sex couples using the "unmarried partner" designation may actually represent miscoded opposite-sex couples in the ACS (Black et al., 2007; Gates and Steinberger 2009; Kreider and Lofquist 2015; Lofquist 2015). To avoid this contamination issue, each chapter conducts sensitivity analyses restricting the sample to same-sex couples at lowest risk of contamination error, which includes same-sex couples verifying their sex in follow-up telephone and personal interviews and same-sex couples not using the "husband/wife" response category in mail responses.

A seventh threat to internal validity is *omitted variable* bias, or events and variables, other than the treatment, that provide alternative explanations for the results. For example, one omitted variable in each chapter that is important for studying the relationship between same-sex marriage laws and health insurance coverage is whether the primary householder or his/her partner was employed and offered ESI by an employer. Leaving out these omitted variables from regression models may bias regression-based estimates toward finding larger disparities in ESI (in chapters 3 and 4)

or a stronger impact (in chapter 5) of same-sex marriage laws on ESI coverage among same-sex couples. Potential solutions to omitted variables are to collect additional data on the unobserved variables and add them to the analysis (Dowd & Town 2002) or to use alternative data sources that include information on important omitted variables. Future research will explore how family- and partner-level variables affect health insurance coverage among same-sex couples using the ACS and other data resources with richer information, including the Current Population Survey and the National Health Interview Survey.

The next threat to internal validity includes *misspecified variances* (Meyer 1995). Incorrectly specifying the variances (and their corresponding standard errors) can overstate the significance of statistical tests due to effects such as the omission of group error terms that indicate that outcomes for individual units are correlated. For example, individuals in a household or in a family unit are likely to share similar outcomes of interest, including health insurance status or poverty. To address this correlation within the household or family, standard errors should be corrected and clustered at the household or family level, which is a relatively an easy correction in most statistical packages. This study acknowledges the correlation of health insurance outcomes in the household and clusters all standard errors at the household level. Furthermore, including both members in the same-sex couple in regression models may similarly overstate disparities (chapters 3-4) and impact estimates (chapter 5), so future research should examine how estimates may vary when studying one member in the same-sex couple.

A ninth threat to internal validity includes *omitted interactions*. Differential trends in socioeconomic and demographic characteristics between the treatment and control

groups (or omitted variables) can change in different ways for the treatment and control group over time. For example, household composition can change differently over time for opposite-sex couples compared to same-sex couples. Since opposite-sex couples are more likely to have children compared to same-sex couples, their children may be more likely to remain in the household through early adulthood, particularly during economic recessions. Therefore, opposite-sex households may grow in size and be more likely to have young adults living in the household over time and during economic recessions. To adjust for these varying time trends, interactions between household composition and time should be included. The "exclusion of such interactions is a common identifying assumption in the designs of natural experiment" (Meyer 1995, page 153). Meanwhile, omitted variables may be changing differently for the treatment and control groups. For instance, eligibility for employer-sponsored insurance—an omitted variable in this study—may not only be different between same-sex couples and opposite-sex couples, but differences in eligibility may change over time for same-sex couples. These interactive relationships between observed and omitted variables may explain causal relationships. Thus, additional data should be collected and included in regression-based analyses. Future research should continue to explore whether and how interactions between characteristics explain disparities in ESI and explain the impacts of same-sex marriage laws on health insurance coverage in same-sex households.

Finally, *threats to internal validity are additive and/or interactive*. The previous threats to internal validity may interact and accumulate to explain the casual relationships between same-sex marriage laws and health insurance coverage in same-sex couples. For instance, the selection issues and the omitted variables in this dissertation may work in

tandem and overstate the impact of same-sex marriage laws on health insurance coverage among same-sex couples, or the instrumentation and history issues involved may be additively explain the findings in each chapter.

2.3.2 Treats to External Validity

According to Shadish, Cook and Campbell (2002), "external validity concerns inferences about the extent to which a causal relationship holds over variations in persons, settings, treatment and outcomes" (page 83). Threats to external validity limit the ability to draw generalizations from a study to other populations, settings, treatments and outcomes. There are four threats to external validity in social science research in which Shadish, Cook and Campbell describe as "interactions" between the causal relationship and alternative units, treatments, outcomes and settings. The term "interaction" is used not as a statistical interaction per se, but a conceptual interaction in which the causal relationship varies across populations, treatments, outcomes and settings.

The first threat to external validity is the *interaction of the causal relationship with units*. A causal relationship for one unit (i.e. individuals, populations or communities) may not hold if other kinds of units are studied. For example, the impacts of same-sex marriage found in gay men may not be found in lesbian women, or vice versa. Additionally, the effects of same-sex marriage laws found at the individual level (the individual is covered by ESI) may not be found at the couple level (dual ESI coverage). This study acknowledges that the causal relationship may vary by unit and studies the impact of same-sex marriage laws separately for men and women at the individual-level in each chapter and at the couple level in chapter 5. Readers are advised

not to extrapolate the findings in these chapters to all lesbian, gay and bisexual (LGB) adults or all same-sex couples. Rather, the following chapters include findings from a sample of same-sex couples in cohabiting relationships with the primary householder.

The second threat to external validity is the *interaction of the causal relationship over treatment variations*, which suggests that an effect found with one treatment type or variation might not hold with other variations of that treatment, or when that treatment is combined with other treatments, or when only part of that treatment is used. This type of challenge limits generalizations from a study when unique treatments are involved or when the treatment is combined with another treatment. For example, the analyses in chapters 3-4 examine early same-sex marriage laws and comprehensive domestic partnership policies. The strength of these policies was limited by the federal Defense of Marriage Act (DOMA), which only recognized marriages between one man and one woman. After June 2013, when the U.S. Supreme Court ruled this section of DOMA unconstitutional, the legalization of same-sex marriage carried additional federal benefits and incentives. Thus, the pre-DOMA findings in this study may not be generalizable to states legalizing same-sex marriage after DOMA (or simultaneously implementing employment anti-discrimination laws protecting LGBT people). Meanwhile, the passage of same-sex marriage in New York (chapter 5) is a unique case, and its effects may not be generalizable to other same-sex marriage laws. More specifically, New York was the only state to recognize out-of-state same-sex marriage licenses while denying same-sex couples to marry in the state following a state court decision (*Martinez v. County of Monroe*) in 2008. In other states, same-sex marriage is implemented after the state successfully and incrementally adopted civil unions or comprehensive domestic

partnerships. Meanwhile, most states adopted same-sex marriage "from scratch" or without having any laws in place legally recognizing same-sex couples. Therefore, results from New York are not generalizable to these other treatment variations.

The third threat to external validity is the *interaction of the causal relationship with outcomes*, which means that an effect found for one kind of outcome may not hold when other outcomes are studied. This study only focuses on health insurance status, and more specifically, employer-sponsored insurance (ESI) status. Any causal relationships found between legalizing same-sex marriage and ESI among same-sex couples may not be generalizable to other outcomes, including access to care measures, health services utilization, and out-of-pocket health care spending. Although health insurance coverage is an important determinant of access to affordable health care, other barriers to care may persist, such as provider-based discrimination, which may limit the effect of same-sex marriage laws on access measures or the extent to which ESI translates into access to care for same-sex couples versus opposite-sex couples. Readers are reminded to take caution to not interpret the findings in this dissertation to reflect access to health care.

The fourth threat to external validity is the *interaction of the causal relationships with settings*, which suggests that an effect found in one kind of setting may not hold if other kinds of settings were to be used. This limitation is especially important in state health policy research, since so few states resemble each other (which also makes it difficult to identify reliable comparison states for studying same-sex marriage). While results in one state might be generalizable to other states (in direction, magnitude and significance), researchers should take into account the political, social and economic context of the study states prior to making generalizations. For example, the results from

chapters 3-4 (in which I examine early adopters of same-sex marriage) or in chapter 5 (in which I study the policy change in New York) may not be generalized to other states. Early adopters of same-sex marriage, including New York, are unique in their political economies that may create policy endogeneity challenges and limit their ability to make comparisons across states.

2.4 Implications of Limited Internal and External Validity

This dissertation acknowledges and addresses threats to internal and external validity, including instrumentation issues, misspecified variances, and interactions of the causal relationship with units, settings and outcomes. Corrections are made throughout this dissertation that (1) addresses the limitations and errors involved with measuring same-sex couples in the American Community Survey (ACS), (2) clusters standard errors around the household, since outcomes in the household are correlated, and (3) uses propensity score weighting methods to match the treatment and control group on *observable* characteristics. While these corrections may absolve some threats to validity, this dissertation does not address all alternative explanations that may explain the relationship between same-sex marriage laws and health insurance coverage among same-sex couples, including the exclusion of omitted variables, omitted interactions and the occurrence of historical events or maturation over time. These unresolved limitations and data challenges may bias potential disparities in ESI and impact estimates of same-sex marriage laws on health insurance coverage for same-sex couples. Therefore, the reader is reminded to carefully interpret the findings from each chapter in this dissertation. For example, the following chapters should not be extrapolated to the entire lesbian, gay and bisexual (LGB) population or to all same-sex couples. Rather, data in the

ACS allow researchers to examine cohabiting adults in same-sex couples where the relationship is between the primary householder and another person in the household. The characteristics of this sample are likely different from same-sex couples not disclosing their relationship or missing in the ACS—and these differences may change over time. Future research should continue to explore how the selection of same-sex couples in the ACS affects the analysis of health insurance among cohabiting same-sex couples by adding supplementary data, using alternative data sources and approaching these research questions alternative methodological approaches. While each data source maintains unique challenges and limitations, researchers should continue to acknowledge and address these issues when describing the impact of important policies.

Table 2.1 Threats to Internal and External Validity

Threats to Internal Validity		
Name	**Definition**	**Relevance to the Three Papers**
1. Ambiguous temporal precedence	Ambiguity about which variable occurred first may yield confusion about which variable is the cause and which is the effect.	Confusion around the timing that same-sex marriage goes into effect in a state may yield confusion on whether same-sex marriage caused changes in health insurance status. Each chapter assigns "treatment" as living in a state with same-sex marriage present during the entire survey year, which assures that marriage was implemented prior to the contemporaneous measurement of health insurance status.
2. Selection	Systematic differences in respondent characteristics could also cause the observed effect.	In each chapter, the sample of same-sex couples self-reporting their relationship is systematically different than same-sex couples choosing not to disclose their relationship or same-sex couples missing in the ACS (not cohabiting together or not in a relationship with the primary householder). Chapter 5 uses propensity score methods to match the observable characteristics between the treatment and comparison groups (but differences may remain in unobservable characteristics).
3. History	Events occurring simultaneously with treatment could cause the observed effect.	A state legalizing same-sex marriage may also implement health insurance reform or experience an economic recession, which affects the observed outcome (i.e. health insurance status). For instance, data for each chapter were collected during the Great Recession (2007-2009), which also affected access to employer-sponsored health insurance. The analysis in chapter 5 also occurred during a rapid shift in public opinion favoring same-sex marriage.
4. Maturation	Naturally occurring changes over time could be confused with a treatment effect.	For each chapter, there are two maturation threats. First, more employers voluntarily offered health insurance benefits to same-sex partners over time without being required to do so by law, which may be confused as a treatment effect. Second, the marriage rate declined among opposite-sex couples over time, which reduced their likelihood of having ESI and their ability to serve as a counterfactual in each

Table 2.1 Threats to Internal and External Validity

		study.
5. Attrition	Loss of respondents to treatment or to measurement can produce artificial effects if that loss is systematically correlated with observed conditions.	Since the American Community Survey (ACS) is not a longitudinal data source, attrition is not a relevant issue for this study.
6. Instrumentation	The nature of a measure may change over time in a way that could be confused with a treatment effect.	Changes in the ACS (e.g. response mode or questions on household relationships and sexual orientation) may change the composition of same-sex couples over time, which may artificially inflate the outcome. This dissertation does not recommend pooling data when there are major changes in the ACS questionnaire (see the technical appendix in chapter 5 for a detailed discussion on this issue). Meanwhile, in each chapter, a substantial portion of same-sex couples may actually be opposite-sex couples misreporting sex in the ACS. Each chapter conducts sensitivity analyses on the sample of same-sex couples least likely to be exposed to this contamination error.
7. Omitted variables	Events, other than the treatment, may provide alternative explanations for the results.	Omitted characteristics of the partner (e.g. employment status or ESI eligibility and offerings from an employer) or the individual (e.g. health status, risk aversion, firm size) may explain disparities in ESI coverage in adults in cohabiting same-sex couples (chapter 3), their children (chapter 4) or the impact estimates of legalizing same-sex marriage (chapter 5).
8. Misspecified variances	The overstatement of the significance of statistical tests due to effects, such as the omission of group error terms that indicate outcomes for individual units are correlated.	Treating individual adults in same-sex couples as independently unrelated units (rather than clustered in the household) will underestimate the standard errors and overstate the effect. Each chapter clustered standard errors at the household-level. Chapter 5 conducts analyses that treat the couple as the unit of observation.

Table 2.1 Threats to Internal and External Validity

9. Omitted interactions	Differential trends in treatment and control groups or omitted variables that change in different ways for treatment and control groups.	Eligibility for ESI coverage may change differently for same-sex couples versus opposite-sex couples over time. Not including interactions between time and sociodemographic characteristics in chapters 3-5 may bias the findings away from null findings.
10. Additive and interactive effects of threats to internal validity	The impact of a threat can be added to that of another threat or may depend on the level of another threat.	These threats to internal validity in each chapter may intersect or be additive.
Threats to External Validity		
Name	**Definition**	**Relevance to the Three Papers**
1. Interaction of the causal relationship with units	An effect found with certain kinds of units might not hold if other kinds of units had been studied.	In each chapter, the association and impacts of same-sex marriage laws and health insurance status may not be consistent when observing the couple as the unit of analysis versus the individual as the unit of analysis. Chapter 5 conducts analyses that treat the couple as the unit of analysis.
2. Interaction of the causal relationship over treatment variations	An effect found with one treatment variation might not hold with other variations of that treatment, or when that treatment is combined with other treatments, or when only part of that treatment is used.	The relationship between same-sex marriage laws on health insurance coverage may be different in states that legalize same-sex marriage versus comprehensive domestic partnership laws; between states that legalize same-sex marriage under DOMA and those that legalize same-sex marriage after DOMA's repeal; or in states that simultaneously legalize same-sex marriage and employment anti-discrimination laws for LGBT people. Each chapter explores early adopters of same-sex marriage laws. Later adopters may have variations of the treatment combined with other treatments, including federal recognition of same-sex marriage.

Table 2.1 Threats to Internal and External Validity

3. Interaction of the causal relationship with outcomes	An effect found on one type of outcome may not hold if other outcomes were considered.	The effects found on health insurance coverage may not be the same effects found on access to care measures (e.g. a usual source of care), health services utilization or out-of-pocket health care spending. None of the chapters are generalizable to other health care outcomes; separate studies should be conducted on alternative outcomes, including access to care, health services utilization and out-of-pocket medical spending.
4. Interactions of the causal relationship with settings	An effect found in one kind of setting may not hold if other settings were used.	The association between narrower disparities in employer-sponsored health insurance and same-sex marriage laws (chapters 3-4) and the effects found in New York (chapter 5) may not be the same effects found in other states. Researchers should consider the political, economic and social context prior to making generalizations to other states.

Source: Adapted from Shadish, Cook & Campbell (2002) and Meyer (1995).

3. The Association Between State Policy Environments and Health Insurance Coverage for Adults in Cohabiting Same-Sex Couples

3.1 Introduction

This chapter[6] examines the association between state-level same-sex marriage policies and disparities in health insurance coverage, particularly through employers, for adults in cohabiting same-sex couples. This study makes two contributions, one in public health and the other in the policy process and policy sciences. Borrowing techniques from previous public health and demographic research using intra-household information to identify cohabiting same-sex couples (or the cohabiting relationship between the primary householder and another person of the same sex in the household) in federal surveys, this study confirms previous research that men and women in cohabiting same-sex couples are less likely to have employer-sponsored health insurance.

After comparing health insurance coverage for adults in same-sex couples to adults in opposite-sex couples nationally, this chapter extends the analysis to the state level and state policy environments. This study finds geographic disparities in ESI for adults in cohabiting same-sex couples, with the largest gaps in employer-sponsored

[6] A version of this paper was published as Gonzales, G. and L.A. Blewett. 2014. "National and State-Specific Health Insurance Disparities for Adults in Same-Sex Relationships." *American Journal of Public Health* 104(2):e95-e104. Portions were reproduced with permission by the Sheridan Press and the American Public Health Association. This chapter differs from the paper in the *American Journal of Public Health* in the following ways: this chapter includes the introduction (section 3.1) required in the dissertation, adds metropolitan statistical area (MSA) to the statistical analyses, uses an alternative measure of income, extends the discussion on the data and analytic limitations, and presents complete regression results and sensitivity analyses in the technical appendix.

insurance (ESI) for men in same-sex couples living in the South and for women in same-sex couples living in the Midwest. This study also finds support that there is at least an association between living in a state with same-sex marriage or marriage-like policies and reduced disparities in ESI for adults in same-sex couples. After controlling for demographic and socioeconomic factors, differences in ESI coverage between women in same-sex couples and women in married opposite-sex couples were narrower in states allowing same-sex marriage, civil unions or domestic partnerships.

These conclusions should be considered in light of the limitations present in the current study. Alternative explanations common in descriptive studies and using observational data may drive some of these findings, including selection bias, omitted variable bias and historical threats to internal validity. First, same-sex couples may be more likely to cohabitate and report or register their relationships in states legalizing same-sex marriage, civil unions or domestic partnerships, and those self-reporting their relationships in federal surveys may be systematically different than those not disclosing their relationships. This study may also suffer from omitted variables bias that may explain disparities in ESI, including the firm size of a respondent's employer, ESI eligibility and offerings in the household, the health status and risk aversion for each person, and the employment characteristics of the partner. Finally, data for this study was collected during the economic recession in 2007-2009, which may also influence the magnitude of ESI disparities during this study, especially if the recession affected same-sex couples differently than opposite-sex couples. Another issue to conducting this study included instrumentation challenges, as a potentially significant number of same-sex couples may actually represent opposite-sex couples misreporting sex. The sensitivity

analyses included in the technical appendix to this chapter edits the data to reduce potential contamination errors in the sample, and the findings were very similar.

In light of these limitations, this study provides an informative lesson for the study of the health policy process. As states adopt customized policies that fit their unique political climates (illustrated in Figure 1.1 by the rollout of state policy over time), the range of alternative policies can extend similar benefits to the target population and, in turn, potentially lead to similar health outcomes. The findings in this study suggest that civil unions and broad domestic partnerships—while called different names and framed as unequal to same-sex marriage laws (NeJaime 2013)—may lead to similar outcomes in health insurance coverage. As this chapter describes, unadjusted and observed differences in ESI were diminished (and even favorable) for men and women in cohabiting same-sex couples living in states with either same-sex marriage laws or civil union policies. After controlling demographic and socioeconomic factors, adjusted differences in ESI moved in similar directions and were narrower in states providing same-sex marriage or civil unions to same-sex couples.

3.2 Background

There are approximately 646,000 same-sex couple households in the United States according to the 2010 decennial census (Lofquist 2012).[7] Same-sex couples reside in every state, but each state maintains its own set of laws and regulations regarding the

[7] There are major challenges in estimating an accurate number of same-sex couples and same-sex households in the United States (described in more detail in the technical appendix to chapter 4). Changes in survey formats and shifting attitudes on LGBT populations make it difficult to count the number of same-sex couples in the United States.

legal status of same-sex marriage. As of October 2013, thirteen states and the District of Columbia had recognized legal marriages for same-sex couples; an additional six states had extended civil unions or comprehensive domestic partnerships to same-sex couples; and the remaining states had banned same-sex marriage altogether through legislative action or amendments to their state constitutions (National Conference of State Legislatures [NCSL] 2013). Differences in same-sex marriage laws can affect access to health insurance for same-sex couples or a subset of the lesbian, gay, bisexual, and transgender (LGBT) population. When states adopt same-sex marriage or civil unions that extend spousal rights and protections to same-sex couples, fully insured private employers regulated by state insurance laws are often required to treat married same-sex couples as married opposite-sex couples.

The Employee Retirement Income Security Act (ERISA) of 1974 limits the reach of state insurance regulation. Although states maintain jurisdiction over fully insured health plans, employers that self-insure—or assume the risk of health claims out of their own assets—are regulated under the federal Employee Retirement Income Security Act (ERISA), as health benefits are treated not as insurance but as an employee benefits similar to employer-provided pension plans (ERISA 1974; Badgett 2010). In 2010, more than half of all workers (57.5%) with employer-sponsored insurance (ESI) were covered by self-insured plans (Crimmel 2011). Because so many workers are covered by self-insured plans, state-level marriage policies can have a limited effect. Using data from the 2001–2007 California Health Interview Surveys, Buchmueller and Carpenter (2012) found that insurance mandates that extended health care benefits to same-sex spouses in

California had no statistically significant effect on dependent coverage for gay and bisexual men and only a small positive effect on lesbian and bisexual women.

The federal Defense of Marriage Act (DOMA), passed in 1996, created additional barriers for LGBT workers interested in adding their spouses to their ESI plan, even when states acknowledged the legality of same-sex marriage. Section 3 of the Defense of Marriage Act (ruled unconstitutional by the United States Supreme Court in 2013) defined marriage as "a legal union between one man and one woman as husband and wife" for federal purposes (DOMA 1996). The federal government does not tax employer contributions to an opposite-sex spouse's health benefits, but under the Defense of Marriage Act, a same-sex partner's health benefits were taxed as if the employer contribution was taxable income. LGBT employees paid, on average, $1,069 in additional federal income taxes when they added their same-sex spouses to employer health plans (Badgett 2007). These barriers to ESI may have led LGBT persons to enroll in public programs or forgo health insurance and access to affordable health care.

3.3 Literature Review

Data on the LGBT population have historically been limited to convenience and nonprobability samples of gay men and lesbian women through health care providers and researchers focusing their research on LGBT health (Institute of Medicine 2011). Although federal surveys do not ascertain sexual orientation, data have been edited to identify same-sex couples and households. Three previous studies have used intra-household information from federal population surveys to compare health insurance

coverage of individuals in cohabiting same-sex couples with insurance coverage of those in cohabiting opposite-sex couples.

Heck *et al*. (2006) used the National Health Interview Survey to compare health insurance coverage and access to medical care of adults in same-sex couples with that of married adults in opposite-sex couples. They used multivariate logistic regression models for men and women and found women in same-sex relationships significantly less likely to have health insurance, to have seen a medical provider in the previous 12 months, and to have a usual source of care. Health insurance coverage, unmet medical needs, and having a usual source of care were not statistically different between men in same-sex couples and married men in opposite-sex couples. The authors believed the HIV epidemic motivated gay men to maintain a regular provider. Compared with the other studies using federal surveys, the National Health Interview Survey accommodates the smallest sample size (316 men and 298 women in same-sex couples)—even after pooling data across a wide time frame, 1997–2003.

Ash and Badgett (2006) took advantage of larger samples in the Current Population Survey. Designed to measure labor force participation and unemployment, the Annual Social and Economic Supplement to the Current Population Survey (CPS-ASEC) requires respondents to report health insurance coverage during the previous 16 months for each person in the household. Pooled data between 1996 and 2003 still produced relatively small sample sizes (486 men and 478 women in same-sex couples), but their study found that both men and women in same-sex couples were 2 to 3 times more likely to be uninsured than were married individuals in opposite-sex couples.

Buchmueller and Carpenter (2010) used a national sample of adults aged between 25 and 64 years in the Behavioral Risk Factor Surveillance System to compare health insurance and utilization of health services of same-sex couples with that of opposite-sex couples (both married and unmarried).[8] Again, both men and women in same-sex relationships were significantly less likely to be insured. Married people in opposite-sex couples had the highest rates and odds of insurance coverage, followed by men and women in same-sex couples, and then by unmarried men and women in opposite-sex couples. Although it provides the largest sample to date (2,384 men and 2,881 women in same-sex relationships), their study pooled data across a wide period (2000–2007) of decline in health insurance coverage, especially for people with ESI (Halahan & Cook 2008).

These three studies were restricted to national-level estimates and surveys with limited sample size. This research builds on the previous work but extends the analysis to all states. Only one other study has estimated health insurance disparities for same-sex couples in a single state using the California Health Interview Study (Ponce *et al*. 2010). Because of the variation in state policies and attitudes toward same-sex couples (Lax & Phillips 2009; Lupia et al. 2010), differential geographic patterns in health insurance may be expected. This study takes advantage of relatively large samples in the American Community Survey (ACS) to compare state-specific health insurance disparities, particularly in ESI coverage. Following recent studies examining the potential for same-sex marriage to improve the health of the LGBT population (Buffie 2011; Lau & Strohm

[8] Buchmueller and Carpenter (2010) identified adults in same-sex relationships when the randomly sampled adult reported being "a member of an unmarried coupled," and there were exactly two men or exactly two women living in the household.

2011; Hatzenbuehler et al. 2012; Wight, LeBlanc & Badgett 2012), this study adds early evidence on the relationship between legal same-sex marriage and health insurance coverage.

3.4 Data and Methodology[9]

3.4.1 Data Source

This study uses data from the 2008–2010 ACS 3-year public use microdata sample. The ACS is a general household survey conducted by the US Census Bureau, and it is designed to provide states and communities with reliable and timely demographic, social, economic, and housing information. Replacing the decennial census long-form questionnaire in 2005, the ACS has an annual sample size of about 3 million housing units and a monthly sample size of about 250,000 households. The large samples available in the ACS make it a powerful source for studying relatively small subpopulations, such as same-sex couples, at the state level (Lofquist 2011).

Like most federal surveys, the ACS does not ascertain sexual orientation. Instead, same-sex couples were identified on the basis of intra-household relationships and were assumed to be lesbian, gay, or bisexual persons. Identification strategies cannot ascertain transgender status because of the binary male–female categories of gender identify included in the survey. Lesbian, gay, and bisexual persons were identified when the primary respondent identified another cohabiting person of the same sex as a husband, wife, or unmarried partner. The Census Bureau edited same-sex spouses as unmarried

[9] A detailed discussion of the data and methods is included in the technical appendix at the end of this chapter.

partners using the husband or wife response categories in the public use files regardless of their legal marriage status (O'Connell & Gooding 2012). Meanwhile, the instruction guide accompanying the survey defines an unmarried partner as a "domestic partner" or "person who shares a close and personal relationship with the reference person" (U.S. Census Bureau 2009, p. 4). A survey of 602 individuals in same-sex relationships indicated that same-sex couples use both responses depending on the nature and legal status of their relationship when asked identical relationship questions in the 2010 decennial census (Gates 2010).

A question regarding health insurance coverage was added to the ACS in 2008 and requires the respondent to report current health insurance coverage for all members of the household. This study used hierarchical assignment to designate a single source of health insurance coverage for each individual, although respondents were able to report multiple sources of coverage. If multiple sources of coverage were reported for a respondent, the primary source of insurance was assigned in the following order:

1. Medicare
2. ESI, Tricare, or other military health care, or Veterans Affairs (including for those who have ever enrolled in or used Veterans Affairs health care)
3. Medicaid, Medical Assistance, or any kind of government assistance plan for those with low incomes or a disability
4. Insurance purchased directly from an insurance company

Individuals reporting no source of coverage or only Indian Health Services were classified as uninsured, in accordance to definitions used by the US Census Bureau

(2013). Insurance information was available for both the primary respondent and their partner, so the unit of analysis was the individual.

3.4.2 Statistical Analyses

This paper first examined ESI disparities at the national level for individuals in same-sex couples in comparison with married and unmarried individuals in opposite-sex couples, which was consistent with previous research (Ash & Badgett 2006; Buchmueller & Carpenter 2010). This study used the following multinomial logistic regression model on the entire sample to control for factors associated with health insurance coverage:

$$Insurance_i = \alpha + \beta_1 Relationship_i + \beta_k X_i + \varepsilon$$

where *Insurance* was one of four primary sources of insurance coverage (ESI, directly purchased insurance, Medicaid, and Medicare; uninsured was the reference category) and *Relationship* indexed the type of relationship (same-sex couple or unmarried opposite-sex couple; married opposite-sex couple was the reference category) for person *i*. *X* was the vector of control variables that included age group (25–34, 35–44, and 45–54 years; 55–64 was the reference group), race and ethnicity (Hispanic, non-Hispanic Black, non-Hispanic Asian, and non-Hispanic other and multiple races; non-Hispanic White was the reference group), educational attainment (less than high school, high school, and some college; college degree was the reference group), couple's combined income in dollars (0-34999, 35000-49999, 75-99999, 100000-149999, >15000; 50000-74999 was the reference group), employment status (part-time employment, unemployed, and not in labor force; full-time employment was the reference group), disability status (whether the individual had difficulties with any of the following: concentrating, remembering or

making decisions because of physical, mental or emotional condition; walking or climbing stairs; dressing or bathing; doing errands such as visiting a doctor's office or shopping; no disabilities was the reference group), residence in a Metropolitan Statistical Area (MSA), citizenship (naturalized and noncitizen; citizen was the reference group), the presence of a biological, adopted, or stepchild younger than 18 years in the household, and state and year fixed effects. Consistent with previous work (Buchmueller & Carpenter 2010; Ponce *et al*. 2010), our sample was restricted to adults aged between 25 and 64 years to account for the completion of educational attainment and Medicare coverage starting at age 65. This paper estimated models separately for men and women, first for the entire sample and then restricted to employed adults to remove any bias in estimating public insurance enrollment attributable to disability or unemployment. This study reported the relative risk ratios (RRRs) for primary source of coverage using individuals in married opposite-sex couples as the reference group.

The second objective of this study was to estimate state-specific disparities in ESI coverage and to identify how they differ across regions and state marriage policies. This paper estimated unadjusted risk (or rate) differences[10] in ESI coverage between adults in same-sex couples and married adults in opposite-sex couples. Rate differences (RDs) in ESI were then tested for statistical significance using a two-tailed test. Adjusted state-level estimates were calculated using predictive margins, or recycled probabilities, from logistic regression models on ESI coverage (Kleinman & Norton 2009). This procedure

[10] Rate differences, or "risk" differences, in this context represents the absolute difference in health insurance coverage in percentage point between adults in same-sex relationships and adults in opposite-sex relationships (Norton, Miller & Kleinman 2001; Kleinman & Norton 2009; Bieler, Brown, Williams & Brogan 2009).

allows one to compare adjusted differences in ESI coverage across states while controlling for the noted variables likely to influence insurance coverage. Results are presented as unadjusted and adjusted rate differences (RDs) in percentage points because they are more intuitive than odds ratios and are frequently utilized in the health disparities literature, such as the *National Healthcare Disparities Report* (2011).

Finally, this study estimated unadjusted and adjusted rate differences between adults in cohabiting same-sex couples and married cohabiting opposite-sex couples on the basis of the legal status of same-sex marriage, civil unions, and broad domestic partnerships available in each respondent's state according to data from the *National Conference of State Legislatures* (2013). This study assigned each individual to one of three categories:

> (1) Same-sex marriage was present in the individual's state during the entire survey year: California (2009, 2010),[11] Connecticut (2009, 2010), Iowa (2010), Massachusetts (2008, 2009, 2010), New Hampshire (2010), Vermont (2010);
>
> (2) Civil unions or domestic partnerships extending broad spousal rights were present in the individual's state during the entire survey year: California (2008), Connecticut (2008), New Hampshire (2008, 2009), New Jersey (2008, 2009, 2010), Oregon (2009, 2010), Washington (2010), Vermont (2008, 2009); and

[11] Although same-sex marriage was adopted in California on June 16, 2008, and repealed on November 5, 2008, following the passage of Proposition 8, the state continued to recognize existing same-sex marriage licenses. Therefore, this study assumes that some same-sex couples in California were exposed to legal same-sex marriage and had the opportunity to be legally married in the 2009 and 2010 ACS.

(3) Neither same-sex marriage, nor civil unions, nor broad domestic partnerships were present in the individual's state during the entire survey year (remaining state–year combinations).

This last category included states with limited domestic partnerships and registries that only provided some spousal rights to same-sex couples or explicitly protected private employers from having to extend health benefits to domestic partners (Maine, Nevada, Wisconsin, and Washington, DC) [NCSL 2013]. Because the specific date (e.g. week or month) when the survey was completed was not available in the ACS public use microdata sample, this study classified individuals on the basis of the marriage policy present in their state of residence the entire year. If a state implemented same-sex marriage early in the year or midyear, this study did not consider respondents in that state to reside in a policy environment with same-sex marriage until the following year.

The final sample size included 15,529 men and 16,418 women in cohabiting same-sex couples, making this the largest analysis of health insurance coverage among same-sex couples and the first to compare health insurance disparities across all states. All regression models and ESI coverage estimates were conducted using Stata, version 12, with survey weights and commands (*svy* and *subpop*). Standard errors were clustered at the household level. Adjusted ESI differences were calculated on the basis of predictive margins using Stata's *margins* command (StataCorp 2011).

3.5 Results

3.5.1 Descriptive Statistics

Descriptive statistics are presented in Table 3.1. Men and women in cohabiting same-sex couples exhibited characteristics that inform predictions of their access to insurance, especially ESI. Both men and women in cohabiting same-sex couples reported similar or higher levels of income and education as their married counterparts in cohabiting opposite-sex couples, whereas adults in unmarried opposite-sex couples reported the lowest levels of income, education and employment. For example, 48% of men in same-sex couples had a college degree compared to 34% of married men and 18% of unmarried men in opposite-sex couples. Men in cohabiting same-sex couples and married men in cohabiting opposite-sex couples reported the highest levels of full-time employment (71% and 77%, respectively). Men in same-sex couples also had the highest income levels of any group; 62% of men in same-sex couples were members of a couple that earned more than $75,000 combined. Unmarried men in opposite-sex couples tended to be younger, more racially and ethnically diverse, and more likely to have less than a high school education.

Women in same-sex couples also reported higher levels of education, income, and full-time employment. Like their male counterparts, women in same-sex couples reported high incomes: 54% of women in same-sex couples were part of a couple earning more than $75,000 combined, compared with 49% of married women and 32% of unmarried women in opposite-sex couples. Almost 70% of women in same-sex couples were employed full-time, a much higher figure than the 47% of women in married opposite-sex couples.

Similar to previous studies (Buchmueller & Carpenter 2010; Ponce *et al*. 2010), this study also found that adults in married cohabiting opposite-sex couples reported the

highest levels of having a related child in the household, whereas adults in cohabiting same-sex couples reported the lowest levels. Only 12% of men and 25% of women in same-sex couples had a related child in the household compared to roughly 50% of adults in married opposite-sex couples. Although men and women in same-sex couples were more educated, were more likely to work full-time, and had higher incomes, they were covered by an employer health plan less frequently than were their married counterparts but more often than their unmarried counterparts in opposite-sex couples.

3.5.2 National Disparities in ESI

Adjusted RRRs for insurance coverage among men in cohabiting same-sex couples and unmarried men in cohabiting opposite-sex couples are presented in Table 3.2; married men in cohabiting opposite-sex couples are the reference group. After controlling for demographic and socioeconomic characteristics, men in same-sex couples were less likely than were men in married opposite-sex couples to have health insurance through an employer (RRR = 0.50; 95% confidence interval [CI] = 0.47, 0.54) or directly purchased from an insurance company (RRR = 0.73; 95% CI = 0.66, 0.80) and more likely to have insurance through Medicaid (RRR = 1.28; 95% CI = 1.11, 1.49). There were no significant differences in Medicare coverage (RRR = 0.99; 95% CI = 0.87, 1.14) between men in same-sex couples and men in married opposite-sex couples. Unmarried men in opposite-sex couples were far less likely than men in same-sex couples and men in married opposite-sex couples to have health insurance through an employer (RRR = 0.32; 95% CI = 0.31, 0.33), directly purchased from an insurance company (RRR = 0.45; 95% CI = 0.43, 0.46), Medicaid (RRR = 0.52; 95% CI = 0.50, 0.54) and Medicare (RRR = 0.47; 95% CI = 0.44, 0.49) [Table 3.2].

When the sample was restricted to employed men (Table 3.2), coverage patterns were similar in magnitude and direction. Notably, even employed men in same-sex couples were marginally ($p<0.10$) more likely to maintain coverage through Medicaid (RRR = 1.23; 95% CI = 0.98, 1.55). It is important to note that Medicaid includes Medical Assistance and any kind of government assistance plan for those with low incomes or a disability. Some men in same-sex relationships may be HIV positive and they may consider the comprehensive primary care received through the Ryan White HIV/AIDS Program when selecting this category. The complete regression results with coefficients for all covariates are included in the appendix to this chapter (Tables 3.7-3.8).

Based on results presented in Table 3.3, women in same-sex couples were also less likely to have insurance through an employer (RRR = 0.46; 95% CI = 0.43, 0.50) and directly purchased from an insurance company (RRR = 0.62; 95% CI = 0.56, 0.69). There were no significant differences between women in same-sex couples and women in married opposite-sex couples in coverage through Medicaid (RRR = 0.99; 95% CI = 0.88, 1.13) and Medicare (RRR = 1.11; 95% CI = 0.97, 1.26).

Like their unmarried male counterparts, unmarried women in opposite-sex couples were also less likely to have insurance through an employer (RRR = 0.27; 95% CI = 0.27, 0.28), directly purchased from an insurer (RRR = 0.43; 95% CI = 0.42, 0.45) or Medicare (RRR = 0.90; 95% CI = 0.86-0.95). However, unmarried women in opposite-sex couples were more likely to have coverage through Medicaid (RRR = 1.35; 95% CI = 1.31-1.39) relative to married women in opposite-sex couples.

When the sample was restricted to employed women, women in same-sex couples were significantly *less* likely to have coverage through Medicaid (RRR = 0.79; 95% CI = 0.66, 0.95) and unmarried women in opposite-sex couples were *more* likely to have coverage through Medicaid (RRR = 1.27; 95% CI = 1.22, 1.33) compared to married women in opposite-sex couples after controlling for demographic and socioeconomic factors. Again, the complete regression results with coefficients for all covariates are included in the appendix to this chapter (Tables 3.9-3.10)

3.5.3 State-Specific Disparities in ESI

The state-specific ESI rate differences (RDs) between men in cohabiting same-sex couples and men in married cohabiting opposite-sex couples are presented in Table 3.4, which includes differences that are unadjusted (or directly observed) and differences that are adjusted for demographic and socioeconomic characteristics. According to the unadjusted RD estimates, men in same-sex couples were less likely to have ESI compared to married men in opposite-sex couples in almost every state, but these absolute differences were only statistically significant at the 95% CI level in twelve states (with ample sample sizes).[12] Among these twelve states, ESI coverage rates for men in same-sex couples were at least 10 percentage points lower compared to ESI coverage rates for men in married opposite-sex couples in six states, including Vermont, Wisconsin, Louisiana, South Carolina, Hawaii, and New Mexico. Meanwhile, men in

[12] The National Center for Health Statistics (2015) considers an estimate unreliable when estimates are based on fewer than 30 records or the relative standard error (defined as the standard error divided by the health insurance estimate and multiplied by 100%) is greater than 30%. The estimates in this study do not have relative standard errors greater than 30% (relative standard errors are available upon request). This study considers sample sizes with fewer than 50 adults in a same-sex relationship unreliable.

same-sex couples had significantly higher levels of unadjusted ESI coverage in only one state—California. ESI coverage for California men in same-sex couples was 3.3 percentage points higher than California men in married opposite-sex couples.

Adjusted rate differences (RDs) between men in same-sex couples and men in married opposite-sex couples are also presented in Table 3.4. After adjusting for demographic and socioeconomic characteristics, ESI coverage for men in same-sex couples was approximately 8.4 percentage points lower than ESI coverage for men in married opposite-sex couples. Adjusted state-level differences in ESI were wider than unadjusted differences and were statistically significant at the 95% CI level in 33 states for men in same-sex couples. Among these states, adjusted differences in ESI were wider than 10 percentage points in 20 states—many of which were located in the South (Georgia, Kentucky, Louisiana, Mississippi, Oklahoma, South Carolina, Tennessee and West Virginia).

Table 3.5 presents the unadjusted and adjusted rate differences (RDs) in ESI between women in cohabiting same-sex couples and women in married cohabiting opposite-sex couples. Unadjusted RDs in ESI for women in same-sex couples were largest in the Midwest. Of the seven states with statistically significant differences in ESI disadvantaging women in same-sex couples relative to women in married opposite-sex couples, five were located in the Midwest: Illinois, Indiana, Michigan, Missouri and Ohio. The other two states where women in same-sex couples were significantly less likely to have ESI were Alabama and Tennessee. In only one state (California) did women in same-sex couples have a significantly higher, unadjusted rate of ESI compared to their married counterparts in opposite-sex couples. The ESI coverage rate for

California women in same-sex couples was 8.9 percentage points higher than the ESI coverage rate for married California women in opposite-sex couples.

Adjusted rate differences (RDs) in ESI coverage between women in cohabiting same-sex couples and women in married cohabiting opposite-sex relationships are also presented in Table 3.5. After adjusting for demographic and socioeconomic characteristics, the ESI coverage rate for women in same-sex couples was 9 percentage points lower than women in married opposite-sex couples, nationally. Adjusted differences in ESI for women in same-sex couples were significantly greater than 10 percentage points in 17 states, many of which were located in the Midwest (Michigan, Illinois, Missouri, Wisconsin, Indiana and Iowa) and the South (Alabama, Georgia, Louisiana, and Tennessee), but some states with large gaps in ESI were located in other regions (Maine and Utah, for instance).

3.5.4 Association Between Same-Sex Marriage, Civil Unions and ESI

Table 3.6 presents unadjusted and adjusted rate differences (RDs) between adults in cohabiting same-sex couples and adults in married cohabiting opposite-sex couples on the basis of the legal status of same-sex marriage or marriage-like (e.g. civil unions or broad domestic partnerships) policies. Observed (unadjusted) ESI differences were negligible for men (RD = 0.0; 95% CI = –2.2, 2.2) and were positive and favorable for women in same-sex couples (RD = 6.19; 95% CI = 4.2, 8.2) in states that recognized legal same-sex marriage. Unadjusted differences in ESI were also not significantly different in states that offered civil unions or broad domestic partnerships to men (RD = 0.3; 95% CI = -2.1, 2.27) or women (RD = 2.3; 95% CI = -0.2, 4.9) in same-sex couples.

Meanwhile, ESI coverage was approximately 4 percentage points lower for both men and women in same-sex couples living in states with same-sex marriage bans or lacking comprehensive same-sex marriage provisions.

After adjusting for socioeconomic and demographic factors, differences in ESI coverage between same-sex couples and married opposite-sex couples grew wider, but the differences were slightly smaller in states that offered legal same-sex marriage, civil unions or broad domestic partnerships than in states without these provisions. Men in cohabiting same-sex couples, for example, experienced similarly sized gaps in ESI in states with same-sex marriage (RD = -7.2; 95% CI = -8.7, -5.6) and states with civil unions or broad domestic partnerships (RD = -7.2; 95% CI = -9.1, -5.2), and these gaps were smaller than the disparities in ESI coverage in states banning same-sex marriage (RD = -8.7; 95% CI = -9.5, -7.8). Meanwhile, adjusted ESI disparities were also narrower for women in same-sex couples living in states with same-sex marriage (RD = -6.4; 95% CI = -8.1, -4.8) or states with civil unions or broad domestic partnerships (RD = -6.1; 95% CI = -8.2, -3.9) compared to women in same-sex couples living in states banning same-sex marriage (RD = -9.6; 95% CI = -10.4, -8.7).

3.6 Discussion

Men and women in cohabiting same-sex couples in the American Community Survey (ACS) enjoy higher income and education levels. Yet, after controlling for education and income, among other factors, this study finds that they do not enjoy the same levels of ESI. Furthermore, there is a significant relationship between access to ESI and the legality of same-sex marriage. ESI coverage gaps are smaller in states that

recognize same-sex marriage—particularly for women in cohabiting same-sex couples. Without the legal status of same-sex marriage and civil unions, LGBT workers in cohabiting same-sex couples face barriers to adding their partners to their health plans. Thus, same-sex marriage remains an imperative health policy issue and part of the public policy goal of expanding access to health care through employer health plans (Buffie 2011).

Although thirteen states and the District of Columbia have adopted marriage equality laws at the time of this writing, 35 states continue to limit the rights of same-sex couples similar to the federal Defense of Marriage Act (NCSL 2013). Yet, many private firms, typically large and self-insured employers, are ahead of state policies and voluntarily extend health benefits to same-sex couples. According to the 2012 Employer Health Benefits Survey sponsored by the Kaiser Family Foundation and the Health Research and Educational Trust, almost half (42%) of large employers with 200 or more employees offer health benefits to same-sex domestic partners. Among all employers surveyed, 31% offered health benefits to same-sex domestic partners in 2012; up from 22% in 2008 (Claxton *et al*. 2012). Further research should investigate the economic and health effects of extending employer benefits to same-sex couples.

Interestingly, cohabiting couples who were least likely to have ESI were unmarried men and women in opposite-sex couples. These couples are less likely than are their married counterparts and those in same-sex couples to have insurance through an employer. In this regard, the lower levels of income and education do translate into lower levels of health insurance coverage, but as the category of people refraining from marriage grows, so too will the rates of the uninsured among working age adults.

3.7 Study Limitations

There were several limitations to using data from the ACS for this study. Foremost, researchers and demographers are concerned with data quality when using intra-household and relationship information to identify same-sex couples. Misreporting gender among married opposite-sex couples, although uncommon, unintentionally includes heterosexuals as false positives among our same-sex couples (Gates 2009). The computer-assisted telephone and personal interview versions of the ACS verify the gender of the husband, wife, and unmarried partner if it matches the primary respondent's gender. After restricting our sample to the respondents using the computer-assisted telephone and personal interview versions of the ACS, sensitivity analyses estimated RRRs similar in direction, magnitude, and significance to the results presented in Tables 3.2-3.3, and similar RDs to the results presented in Table 3.6.[13] Additionally, the identification strategy employed here may be missing some same-sex couples. This study only knew each cohabiting person's relationship to the primary respondent, so this analysis excluded same-sex couples unrelated to the primary respondent or same-sex couples that were identified as a roommate, relative, or nonrelative. Excluding this group from the analysis may underestimate health insurance coverage at the vulnerable spectrum of same-sex couples, which may overstate the size of ESI disparities.

Some of the results, particularly in Table 3.6, may be affected by composition and selection bias. State marriage policies may influence how respondents identify their same-sex partners. This study found smaller ESI disparities in states with same-sex

[13] Results from the sensitivity analyses restricting the sample to adults at lower risk of contamination are included in Tables 3.11-3.18.

marriage, but this may not be explained by the policies themselves but as a response to who reports their same-sex couple status. Additionally, selection into partnership may explain the sensitivity to covariates in the adjusted results, as partnered LGBT adults report elevated socioeconomic measures compared with non-partnered LGBT persons (Carpenter & Gates 2008). Very high levels of income and education may explain why same-sex couples remain disadvantaged in the adjusted models in Table 3.6 because they continue to exhibit lower levels of ESI than their high socioeconomic status may predict. Finally, lesbian women are also more likely to be partnered and report being in state-sanctioned same-sex couple than are gay men (Carpenter and Gates 2008; Black et al. 2000) which may explain why this study found favorable unadjusted RDs and narrower adjusted RDs among women living in states with same-sex marriage (Table 3.6).

This study would have benefited from additional information missing in the ACS. For instance, the method of identifying same-sex couples employed here cannot verify the sexual orientation or the transgender identity of the sample, so bisexual and transgender people were missing from the analysis if they were in an opposite-sex couple. Knowing sexual orientation would have also assisted the analysis and comparison of non-partnered LGBT adults. Furthermore, the legal status of the same-sex couple's relationship remains unknown in this study; researchers cannot decipher whether a same-sex couple is legally married, in a state-sanctioned civil union or domestic partnership, or unmarried cohabitating partners in the 2008-2010 ACS. The Census Bureau reassigns same-sex couples identified as husband or wife to unmarried partners without providing edit flags in the public use files. Withholding reassignment flags for these edits in the

public use files prevents researchers from examining differences between unmarried same-sex couples and married same-sex spouses.[14]

This study would have also benefited from additional variables related to ESI coverage. The size of the firm an individual works for and the individual's health status contribute to whether an employee is offered health insurance and eventually enrolls in an ESI plan. This study attempted to complete the lack of information on health status by including the respondent's disability status in the regression models. Other omitted variables include characteristics of the partner, including the partner's employment status and an ESI offer through employment, which are important predictors of ESI coverage. Future research should continue to explore the mechanisms in which same-sex couples enroll in ESI plans and how enrollment may vary across demographic characteristics. With these limitations in mind, the current study contributes by leveraging the large sample of adults in same-sex couples in the ACS to document disparities in health insurance coverage for same-sex couples across the country, and this paper does so by combining relatively few years of data. The ACS is the largest federal survey conducted in the United States—second to the decennial census—and permits demographers and researchers to regularly describe same-sex couples and their economic well-being (Lofquist etl al. 2012). Other studies on this topic have pooled data across long periods of time, which allows history and maturation issues to bias the results. While data for this study were collected during the economic recession, relying on just three years of data

[14] Following the Supreme Court's 2013 ruling in *U.S. v. Windsor*, which found the section that defined marriage between a man and a women under the Defense of Marriage Act (DOMA) unconstitutional, the U.S. Census Bureau no longer reclassifies same-sex couples using the "husband/wife" response options.

minimizes the influence of maturation issues, such as the secular trends of more companies voluntarily offering ESI to same-sex couples. Future research should continue to explore whether and how economic recessions and cycles affect same-sex couples differently than opposite-sex couples.

3.8 Conclusion

Same-sex couples reside in every state but face various marriage discrimination laws at the time of this writing. Although health insurance disparities among same-sex couples have been well documented, this study used one of the largest national surveys to estimate differences in health insurance coverage, particularly in ESI, across the United States. This study found men in the South and women in the Midwest who are in cohabiting same-sex couples (i.e. the primary householder and his/her partner) experienced the largest ESI disparities between 2008 and 2010. This study also found that ESI disparities were narrower for same-sex couples living in states that had adopted legal same-sex marriage, civil unions, and broad domestic partnerships, but these findings do not satisfy criteria for a causal relationship and may be due to selection bias and omitted variable bias—which should guide future research questions. Nonetheless, this finding contributes to the growing body of evidence that same-sex marriage is potentially associated with health benefits to cohabiting same-sex couples, including expansions in employer-sponsored health insurance.

This study also adds important lessons to the conceptual model in chapter 1. State policies can be customized, including same-sex marriage laws. At the time of this writing, legalizing same-sex marriage was not politically feasible in every state. While

most states continued to ban same-sex marriage, some states implemented marriage-like policies, such as civil unions and broad domestic partnership laws that extended equivalent rights to marriage. This study demonstrates that the narrower gaps in ESI found in states with same-sex marriage laws were also present in states with these marriage-like policies. Thus, results presented in this paper suggest that alternative policies advancing through the policy process can have similar health outcomes. In the next chapter, I extend the analysis to children in same-sex households and examine the association between state policy environments and health insurance coverage for children of same-sex parents.

3.9 Technical Appendix

3.9.1 Data Sample

This study uses data from the 2008-2010 American Community Survey (ACS) to estimate national and state-level disparities in employer-sponsored health insurance for adults in cohabiting same-sex couples relative to adults in cohabiting opposite-sex couples. This study followed previous research (Buchmueller & Carpenter 2010; Ash & Badgett 2006) which divided the analytic sample into three subsamples: (1) married adults in cohabiting opposite-sex couples, (2) unmarried adults in cohabiting opposite-sex couples and (3) all adults in cohabiting same-sex couples. Each sample was constructed based on the relationship with the primary householder. The results presented in this study are consistent with previous findings; adults in same-sex couples are more likely to have employer-sponsored health insurance (ESI) compared to adults in unmarried

opposite-sex couples but less likely to have ESI compared to adults in married opposite-sex couples.

At the time this study was conducted, much less research was available on the accuracy of self-reporting a same-sex relationship with the primary householder in the ACS. A key concern with using the ACS for same-sex marriage research is that there is now a large body of research suggesting that married same-sex couples using the "husband/wife" categories may actually be opposite-sex couples who mistakenly marked the wrong sex on the survey form (Black et al. 2007; Gates and Steinberger 2009; O'Connell and Feliz 2011; Kreider and Lofquist 2015; Lewis, Bates and Streeter 2015). Although this type of error occurs infrequently, a small number of miscoded opposite-sex couples can inundate and contaminate the relatively small sample of same-sex couples. Estimates vary, but between 20-57% of the national sample of married same-sex couples using the "husband/wife" designation may actually represent miscoded opposite-sex couples (Black et al., 2007; Gates and Steinberger 2009; Kreider and Lofquist 2015; Lofquist 2015).

To test the sensitivity of the results presented in this analysis, this study followed the guidance of Gates and Steinberger (2009), and restricted the sample to individuals using the CATI/CAPI response mode (since the sex of a same-sex husband or wife is verified by the interviewer) and individuals using the mail response mode and not allocated marital status (representing same-sex couples using the unmarried partner response option) in the 2008-2010 ACS. While restricting the analytic sample may not completely eliminate contamination, this practice reduces the risk of contamination in the sample of same-sex couples. The sensitivity analyses using the sample of adults at lower

risk of contamination does not change the paper's main findings. Men and women in cohabiting same-sex couples (and part of the relationship with the primary householder) are less likely to have employer-sponsored insurance (ESI) compared to their counterparts in married cohabiting opposite-sex couples (and part of the relationship with the primary householder). Differences in ESI were widest in the Midwest for women in same-sex couples and the South for men in same-sex couples. Also, differences in ESI were narrower for women in same-sex couples living in states with same-sex marriage, civil unions or broad domestic partnerships for same-sex couples. The sensitivity results are presented at the end of this technical appendix (Tables 3.11-3.18).

3.9.2 Methods

This study estimated national disparities using the following multinomial logistic regression equation:

$$Y_i = \alpha + \beta_1 \textit{Relationship}_i + \beta_k X_i + \varepsilon$$

where Y_i represents one of the four health insurance outcomes (ESI, directly purchased insurance, Medicaid, and Medicare; uninsured was the reference category) for person *i*. $\textit{Relationship}_i$ indicates the relationship type for person i (cohabiting same-sex couple, unmarried cohabiting opposite-sex couple; married cohabiting opposite-sex couple was the reference category). The regression model also controls for the vector of covariates, X_i, which included age group, race and ethnicity, educational attainment, couple's combined income, employment status, disability status, residence in a Metropolitan Statistical Area (MSA), citizenship, the presence of a biological, adopted, or stepchild younger than 18 years in the household, state and survey year. The control variables were selected based on their strong association with predicting health insurance status in the

United States (Andersen 2008) and motivated by the synthesis of previous research measuring disparities in health insurance for adults in same-sex couples (Ash & Badgett 2006; Buchmueller & Carpenter 2006). The multinomial regression was first estimated on all adults and then restricted to working adults using Stata 12 and survey weights with the svy and *subpop* commands. Because cohabiting partners of the same household are likely to share similar characteristics, their health insurance outcomes may be correlated. To address this correlation, all standard errors were clustered at the household level. Results from the multinomial logistic regression models are presented here using relative risk ratios (RRRs) which are sometimes reported as odds ratios to mimic the interpretation in logistic regression models (StataCorp 2011; Stata Consulting Group 2015). The abbreviated results from the multinomial logistic regression are presented in Tables 3.2-2.3, and the complete regression coefficients are presented in Tables 3.7-3.10. The complete regression results do not include the coefficients for state fixed effects, but they are available upon request.

After estimating national RRRs in health insurance status, this study then estimated unadjusted and adjusted differences in employer-sponsored insurance (ESI) between adults in cohabiting same-sex couples and adults in married cohabiting opposite-sex couples. Unadjusted estimates were calculated without regression models and covariates using survey person weights with Stata's *svy* and *subpop* commands; again, standard errors were clustered at the household level. To calculate adjusted differences in ESI, this study relied on regression-adjusted estimates predicted from the following logistic regression model on ESI:

$$Y_i = \alpha + \beta_1 \textit{Relationship}_i + \beta_2 \text{State} + \beta_k X_i + \varepsilon$$

where Y_i represents a binary variable for whether the individual *i* has ESI or not. $Relationship_i$ indicates the relationship type for person i (cohabiting same-sex couple; cohabiting married opposite-sex couple was the reference category). The regression model also controlled for the vector of covariates, X_i, which included individual-level variables for age group, race and ethnicity, educational attainment, couple's combined income, employment status, disability status, residence in a Metropolitan Statistical Area (MSA), citizenship, the presence of a biological, adopted, or stepchild younger than 18 years in the household and survey year. Using the method referred as recycled predictions, predictive margins, or regression risk analysis (Kleinman & Norton 2009; Graubard & Korn 2009; Blewett, Davern & Rodin 2004), the predicted probability of having ESI in each state was estimated from the fully-adjusted logistic regression coefficients (available by request) separately for adults in same-sex couples and adults in married opposite-sex couples using Stata's *margins* command, survey weights and the *svy* and *subpop* commands.

After estimating predicted probabilities of ESI for the subsamples, adjusted rate differences (RDs), which calculated the difference in ESI coverage between adults in same-sex relationships and adults in opposite-sex relationships, were estimated:

$$\text{Adjusted RD} = \Pr(\text{ESI} \mid \text{X})_{\text{same-sex}} - \Pr(\text{ESI} \mid \text{X})_{\text{opposite-sex}}$$

Rate differences, sometimes called "risk" differences, in this context represent the absolute difference in ESI in percentage point terms (Norton, Miller & Kleinman 2001; Kleinman & Norton 2009; Bieler, Brown, Williams & Brogan 2009). Rate differences were then tested using the following t-score in a two-tailed t-test to evaluate the null hypothesis that the contrast equals zero (Bieler, Brown, Williams & Brogan 2010):

$$t = \frac{Rate\ \ Difference\ (RD)}{\sqrt{Var(samesex) - Var(oppositesex)}}$$

where statistical significance was assigned at 10%, 5% and 1% when the t-score was above the critical values of 2.54, 1.96 and 1.65 respectively. This study uses rate differences (RDs) in percentage points because they are more intuitive to the reader than odds ratios from a logistic regression model. Unadjusted and regression-adjusted differences in ESI coverage rates and their risk differences are presented in Tables 3.4 for men and Table 3.5 for women.

Finally, unadjusted and adjusted ESI estimates and risk differences were estimated by state policy environments using the same techniques described above. Each observation in the analytic sample was coded into three categories based on the contemporaneous state policy environment for the entire year: (1) whether same-sex marriage was present the entire year; (2) whether civil unions or domestic partnership laws were present the entire year; or (3) whether no marriage provisions for same-sex couples were available the entire year. The timing of state policies regarding the implementation of same-sex marriage, civil union and domestic partnership laws was taken from the National Conference of State Legislature's website and verified by the data on the Human Rights Campaign website. This study uses contemporaneous state policy environments to code observations in this analysis and allows states to be coded differently from year to year in order to reflect the diffusion of same-sex marriage, civil unions and domestic partnerships over the study period. Since detailed information on the exact timing when the survey was completed or mailed (e.g. month or week) is not

included in ACS public use files, this study classifies observations based on the policy environment available in the state during the entire year.

3.9.3 Sensitivity Analyses

Because there is concern about contamination in the sample of adults in same-sex couples (as described above), all of the analyses were repeated and restricted to the sample of adults using the CATI/CAPI response modes and the sample of adults using the mail response mode and not allocated marital status, which should reduce some contamination (Gates and Steinberger 2009). This sensitivity analysis does not change the main findings. Adults in cohabiting same-sex couples are less likely to have ESI compared to adults in married cohabiting opposite-sex couples, and differences in ESI coverage between adults in same-sex couples and adults in married opposite-sex couples are narrower in states that have authorized same-sex marriage, civil unions or comprehensive domestic partnerships. All tables from this sensitivity analysis are presented in Tables 3.11-3.18.

This study relies on a non-random sample of household heads and their partners. Future research should continue to investigate whether and how same-sex marriage laws affect marriage, cohabitation and ESI disparities among other LGBT individuals and couples, including those couples unrelated to the household head. Specifically, the next extensions of this work will use data on the universe of LGBT people in a randomly selected sample of LGBT adults in order to examine whether same-sex marriage laws are actually associated with narrower disparities in ESI, and that these findings are not driven by the increased likelihood of cohabiting and changing compositions over time.

Table 3.1 Sample Descriptive Statistics, by Relationship Type

	Men			Women		
	Same-Sex, Weighted Mean, %	Opposite-Sex Unmarried, Weighted Mean, %	Opposite-Sex Married, Weighted Mean, %	Same-Sex, Weighted Mean, %	Opposite-Sex Unmarried, Weighted Mean, %	Opposite-Sex Married, Weighted Mean, %
Age (years)						
25-34	19.7	43.0	17.7	21.7	44.6	20.3
35-44	32.0	26.5	27.0	28.3	25.8	27.1
45-54	31.6	20.0	29.9	31.9	20.3	29.4
55-64	16.8	10.4	25.4	18.2	9.3	23.2
Race/Ethnicity						
Non-Hispanic White	76.7	62.6	70.3	77.0	64.5	70.8
Non-Hispanic Black	5.4	13.9	7.7	7.4	11.2	7.1
Non-Hispanic Asian	3.6	1.9	5.7	2.2	2.9	6.6
Non-Hispanic Other/Multiple Races	2.2	2.9	1.8	2.7	3.1	1.9
Hispanic	12.0	18.6	14.5	10.6	18.3	13.6
Educational Attainment						
Less than high school	5.8	17.8	11.8	5.7	14.7	9.8
High school degree or GED	16.3	34.1	25.9	16.9	28.5	25.1
Some college or vocational	30.5	29.9	28.8	30.3	34.1	31.4
College degree	47.5	18.2	33.6	47.1	22.7	33.6
Couple's combined income						

Table 3.1 Sample Descriptive Statistics, by Relationship Type

	Men			Women		
	Same-Sex, Weighted Mean, %	Opposite-Sex Unmarried, Weighted Mean, %	Opposite-Sex Married, Weighted Mean, %	Same-Sex, Weighted Mean, %	Opposite-Sex Unmarried, Weighted Mean, %	Opposite-Sex Married, Weighted Mean, %
0-34,999	11.4	29.8	17.1	15.3	28.8	17.7
35,000-49,999	9.1	16.7	12.2	10.8	16.1	12.1
50,000-74,999	16.7	23.0	21.1	20.0	23.0	20.9
75,000-99,999	15.5	14.0	17.1	17.2	14.4	16.9
100,000-149,999	22.1	11.0	18.7	20.7	11.7	18.5
>150,000	25.2	5.5	13.8	16.0	6.1	13.9
Employment						
Full-Time	70.6	68.4	77.2	67.0	55.1	47.1
Part time	10.8	10.9	7.4	14.2	17.1	19.6
Unemployed	5.0	9.9	4.8	4.5	7.3	3.9
Not in labor force	13.6	10.8	10.7	14.4	20.4	29.5
Children under 18 years in household	12.4	40.3	50.2	24.6	39.6	48.3
Region						
Northeast	20.7	19.6	17.9	21.7	19.8	18.0
Midwest	17.5	23.0	22.4	19.0	22.6	22.4
South	33.0	32.7	36.6	31.7	32.8	36.6
West	28.9	24.7	23.2	27.6	24.9	23.1
Citizenship						
Citizen	88.5	85.2	80.5	92.8	85.0	80.7

Table 3.1 Sample Descriptive Statistics, by Relationship Type

	Men			Women		
	Same-Sex, Weighted Mean, %	Opposite-Sex Unmarried, Weighted Mean, %	Opposite-Sex Married, Weighted Mean, %	Same-Sex, Weighted Mean, %	Opposite-Sex Unmarried, Weighted Mean, %	Opposite-Sex Married, Weighted Mean, %
Naturalized	5.7	3.7	8.8	3.9	4.5	9.0
Non-citizen	5.8	11.2	10.7	3.3	10.4	10.2
Disabled	6.3	6.8	5.7	8.6	8.2	6.2
MSA residence	92.7	84.0	83.7	89.8	84.1	83.5
Primary source of health insurance						
Employer	70.9	51.2	74.5	72.1	50.4	74.1
Direct Purchase	8.3	5.1	6.1	6.7	5.3	6.9
Medicaid	3.5	5.9	3.3	4.4	13.1	4.0
Medicare	3.5	2.5	2.7	3.2	2.9	2.3
Uninsured	13.8	35.3	13.5	13.6	28.4	12.7
Sample Size	15,529	133,347	1,491,384	16,418	125,800	1,569,327

Note: GED = general equivalency diploma. FPG = federal poverty guidelines. Weighted means are for adults aged 25 to 64 years.
Source: 2008-2010 American Community Survey

Table 3.2 Multinomial Logistic Regression Analysis of Health Insurance Coverage by Relationship Type for Men

	Adjusted RRR (95% CI)											
	Employer vs. Uninsured			Direct Purchase vs. Uninsured			Medicaid vs. Uninsured			Medicare vs. Uninsured		
All Men												
In a married opposite-sex couple	1.00	Reference		1.00	Reference		1.00	Reference		1.00	Reference	
In an unmarried opposite-sex couple	0.32	(0.31-0.33)	***	0.45	(0.43-0.46)	***	0.52	(0.50-0.54)	***	0.47	(0.44-0.49)	***
In a same-sex couple	0.50	(0.47-0.54)	***	0.73	(0.66-0.80)	***	1.28	(1.11-1.49)	***	0.99	(0.87-1.14)	
Only Employed Men												
In a married opposite-sex couple	1.00	Reference		1.00	Reference		1.00	Reference		1.00	Reference	
In an unmarried opposite-sex couple	0.36	(0.35-0.36)	***	0.47	(0.45-0.49)	***	0.44	(0.42-0.47)	***	0.48	(0.43- 0.54)	***
In a same-sex couple	0.58	(0.53-0.63)	***	0.79	(0.66- 0.84)	***	1.23	(0.98-1.55)	*	1.10	(0.84-1.45)	

Note: RRR = Relative risk ratio. CI = confidence interval. All models control for age group, income group, educational attainment, employment status, citizenship status, disability status, the presence of a related child under 18 years in the household, state of residence, metropolitan status and survey year.
*P<.10; **P<.05; ***P<.01

Table 3.3 Multinomial Logistic Regression Analysis of Health Insurance Coverage by Relationship Type for Women

	Adjusted RRR (95% CI)											
	Employer vs. Uninsured			Direct Purchase vs. Uninsured			Medicaid vs. Uninsured			Medicare vs. Uninsured		
All Women												
In a married opposite-sex couple	1.00	Reference		1.00	Reference		1.00	Reference		1.00	Reference	
In an unmarried opposite-sex couple	0.27	(0.27-0.28)	***	0.43	(0.42-0.45)	***	1.35	(1.31-1.39)	***	0.90	(0.86-0.95)	***
In a same-sex couple	0.46	(0.43-0.50)	***	0.62	(0.56-0.69)	***	0.99	(0.88-1.13)		1.11	(0.97-1.26)	
Only Employed Women												
In a married, opposite-sex couple	1.00	Reference		1.00	Reference		1.00	Reference		1.00	Reference	
In an unmarried, opposite-sex couple	0.35	(0.34-0.36)	***	0.49	(0.45-0.51)	***	1.17	(1.11-1.22)	***	0.67	(0.60-0.76)	***
In a same-sex couple	0.50	(0.46-0.55)	***	0.67	(0.60-0.76)	***	0.79	(0.66-0.95)	**	0.98	(0.75-1.27)	

Note: RRR = Relative risk ratio. CI = confidence interval. All models control for age group, income group, educational attainment, employment status, citizenship status, disability status, the presence of a related child under 18 years in the household, state of residence, metropolitan status and survey year.
*P<.10; **P<.05; ***P<.01

Table 3.4 Unadjusted and Adjusted Differences in ESI Between Men in Same-Sex Couples and Men in Married Opposite-Sex Couples

	Unadjusted RD (95% CI) in percentage points		Adjusted RD (95% CI) in percentage points	
Northeast	**-3.2**	**(-5.1,-1.3)*** **	**-7.8**	**(-9.6,-6)*** **
Connecticut	-0.1	(-7.7,7.4)	-2.2	(-10.4,6.1)
Maine	-6.4	(-19,6.3)	-13.7	(-25,-2.4)**
Massachusetts	-4.4	(-8.8,0)*	-7.5	(-12.1,-2.9)***
New Hampshire	-10.3	(-23,2.5)	-4.8	(-13.4,3.9)
New Jersey	-2.8	(-7.2,1.7)	-7.4	(-11.4,-3.4)***
New York	0.4	(-2.6,3.3)	-6.8	(-9.6,-4.1)***
Pennsylvania	-5.1	(-10.1,-0.1)*	-9.3	(-13.9,-4.7)***
Rhode Island	-11.5	(-25.2,2.2)	-13.2	(-21.1,-5.3)***
Vermont	-18.8	(-35.4,-2.2)**	-15.7	(-28.5,-2.8)**
Midwest	**-6.6**	**(-8.9,-4.3)*** **	**-8.3**	**(-10.1,-6.4)*** **
Illinois	-3.1	(-7.1,0.9)	-6.5	(-9.9,-3.1)***
Indiana	-9.1	(-16.4,-1.7)**	-11.8	(-18,-5.64)***
Iowa	-8.9	(-23.7,5.8)	-8.0	(-15.2,-0.7)*
Kansas	-9.4	(-27,8.2)	-10.9	(-20.2,-1.5)**
Michigan	-1.7	(-7.1,3.8)	-5.5	(-9.7,-1.3)**
Minnesota	-9.6	(-17.4,-1.8)**	-11.5	(-17.9,-5)***
Missouri	-7.0	(-15.2,1.2)	-8.3	(-15.3,-1.3)**
Nebraska†	-17.6	(-43.5,8.2)	1.4	(-14.7,17.4)
North Dakota†	-4.8	(-36.7,27.1)	2.6	(-17.6,22.9)
Ohio	-5.7	(-10.4,-1)**	-7.6	(-12,-3.3)***
South Dakota†	-0.4	(-30.8,30.1)	1.8	(-16.9,20.6)
Wisconsin	-15.6	(-24.7,-6.5)***	-12.9	(-20.2,-5.7)***

Table 3.4 Unadjusted and Adjusted Differences in ESI Between Men in Same-Sex Couples and Men in Married Opposite-Sex Couples

	Unadjusted RD (95% CI) in percentage points		Adjusted RD (95% CI) in percentage points	
South	**-4.5**	**(-6.0,-3)*** **	**-9.3**	**(-10.5,-8)*** **
Alabama	-10.3	(-22.4,1.8)	-7.3	(-14.9,0.2)*
Arkansas	6.1	(-4.3,16.5)	5.6	(-2.1,13.3)
Delaware	-10.8	(-22.3,0.8)	-12.1	(-23.4,-0.8)*
District of Columbia	-1.7	(-6.8,3.4)	-9.1	(-14.2,-3.9)**
Florida	-4.7	(-7.9,-1.5)***	-9.2	(-11.7,-6.7)***
Georgia	-4.3	(-8.7,0.0)*	-10.2	(-14.1,-6.2)***
Kentucky	-7.0	(-15.1,1.2)	-10.2	(-18.3,-2.2)**
Louisiana	-12.0	(-20.9,-3.1)**	-12.4	(-19.2,-5.6)***
Maryland	-8.7	(-15.9,-1.6)**	-11.2	(-17.4,-4.9)***
Mississippi	-13.8	(-26.6,-1)*	-15.1	(-26.8,-3.4)**
North Carolina	-1.4	(-6.9,4.1)	-4.4	(-8.4,-0.4)**
Oklahoma	-8.2	(-19.9,3.5)	-13.4	(-22.7,-4.1)***
South Carolina	-15.8	(-24.6,-7)***	-13.0	(-21,-4.9)***
Tennessee	-5.2	(-11.4,0.9)	-11.1	(-16.4,-5.8)***
Texas	1.2	(-2.2,4.7)	-8.7	(-11.5,-5.9)***
Virginia	-8.7	(-15.5,-1.9)**	-7.2	(-11.6,-2.7)***
West Virginia	-12.0	(-30,6.1)	-21.4	(-37.5,-5.3)**
West	**0.1**	**(-1.6,1.7)**	**-7.9**	**(-9.4,-6.5)*** **
Alaska†	6.5	(-6.4,19.5)	-0.8	(-14,12.5)
Arizona	-6.1	(-12.3,0.1)*	-11.4	(-16.9,-5.9)***
California	3.3	(1.2,5.4)***	-7.5	(-9.3,-5.7)***
Colorado	0.2	(-6.3,6.8)	-6.3	(-12.5,-0.1)*

Table 3.4 Unadjusted and Adjusted Differences in ESI Between Men in Same-Sex Couples and Men in Married Opposite-Sex Couples

	Unadjusted RD (95% CI) in percentage points		Adjusted RD (95% CI) in percentage points	
Hawaii	-16.9	(-32.5,-1.3)**	-22.0	(-38.7,-5.4)**
Idaho†	10.6	(-6.7,27.8)	3.0	(-12,18)
Montana†	-4.7	(-37,27.5)	-2.6	(-22.4,17.3)
Nevada	-8.5	(-16.6,-0.4)*	-13.7	(-20.2,-7.1)***
New Mexico	-16.1	(-27.4,-4.8)**	-17.4	(-28.2,-6.5)***
Oregon	-0.9	(-7.3,5.6)	-5.9	(-11.8,-0.1)*
Utah	3.9	(-4.9,12.6)	-4.4	(-12.7,3.9)
Washington	-0.2	(-5.9,5.5)	-5.3	(-10.5,0)*
Wyoming†	-56.0	(-78.5,-33.5)***	-31.7	(-45.4,-18)***
United States	**-3.5**	**(-4.4,-2.6)*** **	**-8.4**	**(-9.2,-7.7)*** **

Note: RD = Rate difference. CI = Confidence interval. Adjusted models include a control for age group, income group, educational attainment, employment status, citizenship status, disability status, the presence of related children under 18 years living in the household, residence in a Metropolitan Statistical Area (MSA) and survey year.

† Indicates sample size fewer than 50 adults in a same-sex relationship, and results are not considered reliable.

*P<.10; **P<.05; ***P<.01

Table 3.5 Unadjusted and Adjusted Differences in ESI Between Women in Cohabiting Same-Sex Couples and Women in Married Cohabiting Opposite-Sex Couples

	Unadjusted RD (95% CI) in percentage points		Adjusted RD (95% CI) in percentage points	
Northeast	**-1.6**	**(-3.5,0.3)**	**-8.5**	**(-10.3,-6.8)*****
Connecticut	-5.2	(-12.6,2.2)	-8.6	(-17.4,0.3)*
Maine	-7.4	(-18.3,3.6)	-12.5	(-22.8,-2.2)**
Massachusetts	-2.5	(-5.8,0.8)	-9.2	(-12.4,-6)***
New Hampshire	3.2	(-3.5,9.9)	1.0	(-6,7.9)
New Jersey	-2.0	(-7.5,3.4)	-9.2	(-13.9,-4.5)***
New York	1.1	(-2.2,4.4)	-8.1	(-11.3,-5)***
Pennsylvania	-3.7	(-9.2,1.8)	-7.8	(-12.4,-3.3)***
Rhode Island	-3.5	(-13.6,6.6)	-9.5	(-19.5,0.5)
Vermont	-6.8	(-19.9,6.4)	-13.5	(-27.1,0.1)*
Midwest	**-9.3**	**(-11.6,-7.1)*****	**-12.0**	**(-13.8,-10.3)*****
Illinois	-10.4	(-15.8,-5.1)***	-13.8	(-17.6,-10)***
Indiana	-10.5	(-16.9,-4.1)***	-12.4	(-17.2,-7.7)***
Iowa	-2.4	(-13.4,8.5)	-12.1	(-21.7,-2.6)**
Kansas	1.2	(-6.4,8.8)	-6.0	(-12.9,0.9)
Michigan	-16.0	(-22.9,-9.1)***	-14.7	(-20.1,-9.4)***
Minnesota	-2.5	(-9.7,4.7)	-7.1	(-13,-1.2)**
Missouri	-13.2	(-21.1,-5.2)***	-13.8	(-19.9,-7.7)***
Nebraska	-11.4	(-24.4,1.7)	-10.3	(-26.9,6.3)
North Dakota†	-11.8	(-36,12.4)	-4.0	(-15.7,7.6)
Ohio	-8.6	(-12.9,-4.3)***	-11.7	(-15.6,-7.7)***
South Dakota†	17.0	(5.5,28.4)**	17.2	(6.7,27.8)***
Wisconsin	-7.6	(-14.8,-0.4)*	-13.0	(-18.6,-7.5)***
South	**-2.1**	**(-3.6,-0.5)****	**-8.6**	**(-9.9,-7.3)*****

Table 3.5 Unadjusted and Adjusted Differences in ESI Between Women in Cohabiting Same-Sex Couples and Women in Married Cohabiting Opposite-Sex Couples

	Unadjusted RD (95% CI) in percentage points		Adjusted RD (95% CI) in percentage points	
Alabama	-15.4	(-25.5,-5.2)***	-13.9	(-20.4,-7.3)***
Arkansas	-6.4	(-18.7,5.9)	-2.8	(-14.6,9.1)
Delaware	4.0	(-6.3,14.3)	1.0	(-11.1,13.2)
District of Columbia	-1.7	(-10.4,7.1)	-15.6	(-23.6,-7.7)***
Florida	0.3	(-3.0,3.6)	-8.6	(-11.6,-5.6)***
Georgia	-3.7	(-8.5,1.2)	-10.5	(-14.9,-6.1)***
Kentucky	-3.0	(-11.2,5.1)	-3.8	(-11,3.4)
Louisiana	-9.2	(-18.6,0.3)*	-10.7	(-18.3,-3)**
Maryland	2.8	(-1.4,6.9)	-4.5	(-9.1,0.1)*
Mississippi	-5.6	(-18.1,7)	-11.6	(-24.7,1.6)
North Carolina	-2.8	(-7.9,2.3)	-8.6	(-13.1,-4)***
Oklahoma	-0.9	(-9.8,8)	-3.5	(-10.1,3.1)
South Carolina	-7.6	(-16.8,1.6)	-6.0	(-12.5,0.6)
Tennessee	-9.3	(-16.1,-2.5)**	-11.2	(-16.3,-6.1)***
Texas	1.7	(-1.6,5)	-9.6	(-12.4,-6.8)***
Virginia	-1.6	(-6.6,3.4)	-5.9	(-10.4,-1.4)**
West Virginia	-2.5	(-18.9,14)	-6.6	(-18,4.8)
West	**3.1**	**(1.5,4.8)*** **	**-7.4**	**(-8.9,-5.8)*** **
Alaska	0.5	(-12.4,13.4)	-7.3	(-21.1,6.5)
Arizona	-1.2	(-7.3,4.9)	-9.6	(-15.1,-4.2)***
California	8.9	(6.8,11)***	-4.7	(-6.8,-2.6)***
Colorado	-3.6	(-9.5,2.3)	-11.5	(-16.8,-6.3)***
Hawaii	-12.2	(-26.9,2.6)	-14.0	(-30.3,2.3)
Idaho	0.7	(-10,11.4)	1.2	(-7.4,9.8)

Table 3.5 Unadjusted and Adjusted Differences in ESI Between Women in Cohabiting Same-Sex Couples and Women in Married Cohabiting Opposite-Sex Couples

	Unadjusted RD (95% CI) in percentage points		Adjusted RD (95% CI) in percentage points	
Montana	10.0	(-1.0,20.9)	-2.0	(-16.1,12.1)
Nevada	-5.7	(-17.4,6.1)	-12.0	(-21.2,-2.8)**
New Mexico	-6.7	(-16.0,2.7)	-13.9	(-21,-6.8)***
Oregon	0.6	(-5.5,6.7)	-4.8	(-10.5,0.9)
Utah	-2.7	(-14.4,9.1)	-12.3	(-22.4,-2.3)**
Washington	-2.0	(-6.9,3)	-9.7	(-14.4,-5)***
Wyoming†	-2.2	(-25.7,21.2)	-12.4	(-33.4,8.6)
United States	**-2.0**	**(-2.9,-1.1)*** **	**-9.0**	**(-9.8,-8.2)*** **

Note: RD = Rate difference. CI = Confidence interval. Adjusted models include a control for age group, income group, educational attainment, employment status, citizenship status, disability status, the presence of related children under 18 years living in the household, residence in a Metropolitan Statistical Area (MSA) and survey year.

† Indicates sample size fewer than 50 adults in a same-sex relationship, and results are not considered reliable.

*P<.10; **P<.05; ***P<.01

Table 3.6 Differences in ESI Coverage for Same-Sex Couples by State Marriage Policy

	Unadjusted RD (95% CI) in percentage points		Adjusted RD (95% CI) in percentage points	
Men				
Same-sex marriage	0.0	(-2.2,2.2)	-7.2	(-8.7,-5.61)***
Civil unions or broad domestic partnerships	0.3	(-2.1,2.7)	-7.2	(-9.11,-5.2)***
Same-sex marriage bans or no provisions	-4.7	(-5.7,-3.6)***	-8.7	(-9.48,-7.84)***
Women				
Same-sex marriage	6.2	(4.2,8.2)***	-6.4	(-8.07,-4.76)***
Civil unions or broad domestic partnerships	2.3	(-0.2,4.9)	-6.1	(-8.27,-3.9)***
Same-sex marriage bans or no provisions	-4.1	(-5.1,-3.0)***	-9.6	(-10.39,-8.73)***

Note: RD= Rate difference. CI = Confidence interval. Adjusted models include a control for age group, income group, educational attainment, employment status, citizenship status, disability status, a dummy for related children under 18 years living in the household, residence in a Metropolitan Statistical Area (MSA), state and survey year.
*P<.10; **P<.05; ***P<.01

Complete Regression Tables

The following tables represent the complete multinomial logistic regression results presented in Tables 3.2 and 3.3.

Table 3.7 Multinomial Logistic Regression Analysis of Health Insurance Coverage for ALL MEN

	Adjusted RRR (95% CI)							
	Employer vs. Uninsured		Direct Purchase vs. Uninsured		Medicaid vs. Uninsured		Medicare vs. Uninsured	
Relationship type								
Married opposite-sex couple	1.00	Reference	1.00	Reference	1.00	Reference	1.00	Reference
Same-sex couple	0.50	(0.47-0.54)	0.73	(0.66-0.80)	1.28	(1.11-1.49)	1.00	(0.87-1.14)
Unmarried opposite-sex couple	0.32	(0.31-0.33)	0.45	(0.43-0.46)	0.52	(0.50-0.54)	0.47	(0.44-0.49)
Age (years)								
25-34	0.41	(0.40-0.42)	0.30	(0.29-0.31)	1.08	(1.04-1.13)	0.14	(0.13-0.15)
35-44	0.46	(0.45-0.47)	0.39	(0.38-0.41)	0.97	(0.93-1.02)	0.28	(0.27-0.30)
45-54	0.59	(0.58-0.6)	0.59	(0.58-0.61)	0.94	(0.90-0.98)	0.49	(0.47-0.50)
55-64	1.00	Reference	1.00	Reference	1.00	Reference	1.00	Reference
Race/Ethnicity								
White	1.00	Reference	1.00	Reference	1.00	Reference	1.00	Reference
Hispanic	0.73	(0.71-0.75)	0.34	(0.32-0.35)	0.71	(0.68-0.74)	0.79	(0.75-0.84)
Black	0.98	(0.95-1.00)	0.39	(0.37-0.41)	1.37	(1.31-1.44)	1.07	(1.01-1.12)
Asian	0.98	(0.94-1.02)	0.83	(0.79-0.87)	1.57	(1.47-1.67)	0.97	(0.88-1.07)
Multiple/Other Races	0.66	(0.63-0.69)	0.45	(0.41-0.48)	1.08	(1.00-1.16)	0.83	(0.76-0.91)
Educational Attainment								
Less than high school	0.25	(0.24-0.26)	0.19	(0.18-0.19)	1.30	(1.24-1.37)	0.75	(0.71-0.79)
High school graduate	0.41	(0.40-0.42)	0.32	(0.31-0.32)	1.07	(1.02-1.13)	0.79	(0.75-0.83)
Some college	0.59	(0.58-0.61)	0.47	(0.46-0.49)	1.06	(1.00-1.11)	0.91	(0.87-0.96)
College degree	1.00	Reference	1.00	Reference	1.00	Reference	1.00	Reference

Table 3.7 Multinomial Logistic Regression Analysis of Health Insurance Coverage for ALL MEN

Couple's combined income ($)								
0-34,999	0.21	(0.21-0.21)	0.43	(0.42-0.45)	2.73	(2.62-2.85)	0.52	(0.50-0.55)
35,000-49,999	0.51	(0.50-0.52)	0.65	(0.63-0.67)	1.39	(1.32-1.46)	0.73	(0.70-0.77)
50,000-74,999	1.00	Reference	1.00	Reference	1.00	Reference	1.00	Reference
75,000-99,999	1.80	(1.75-1.85)	1.40	(1.35-1.45)	0.76	(0.71-0.83)	1.44	(1.36-1.52)
100,000-149,999	2.63	(2.55-2.72)	1.81	(1.74-1.88)	0.77	(0.70-0.85)	1.66	(1.56-1.77)
>150,000	3.09	(2.96-3.23)	2.90	(2.76-3.05)	0.73	(0.64-0.84)	1.64	(1.50-1.79)
Employment								
Part-time	0.42	(0.41-0.43)	0.92	(0.89-0.95)	1.25	(1.20-1.29)	2.29	(2.14-2.44)
Unemployed	0.21	(0.20-0.22)	0.40	(0.38-0.42)	1.29	(1.25-1.34)	0.96	(0.88-1.04)
Not in labor force	0.55	(0.53-0.56)	1.01	(0.97-1.04)	2.75	(2.65-2.86)	18.94	(18.04-19.88)
Children under 18 years in household	1.12	(1.10-1.13)	1.14	(1.11-1.16)	3.25	(3.15-3.35)	1.12	(1.07-1.16)
Citizenship								
Citizen	1.00	Reference	1.00	Reference	1.00	Reference	1.00	Reference
Naturalized	0.53	(0.52-0.55)	0.85	(0.82-0.89)	0.83	(0.79-0.87)	0.65	(0.61-0.69)
Non-citizen	0.26	(0.25-0.27)	0.41	(0.39-0.42)	0.35	(0.33-0.36)	0.22	(0.20-0.24)
Disabled	1.05	(1.02-1.08)	0.62	(0.59-0.66)	3.13	(3.01-3.26)	6.72	(6.47-6.97)
MSA residence	1.19	(1.17-1.22)	0.97	(0.94-0.99)	0.94	(0.91-0.98)	0.97	(0.94-1.01)
Year								
2008	1.00	Reference	1.00	Reference	1.00	Reference	1.00	Reference
2009	0.99	(0.98-1.01)	0.97	(0.95-0.99)	1.07	(1.04-1.1)	0.95	(0.92-0.98)
2010	0.96	(0.95-0.98)	0.92	(0.90-0.95)	1.18	(1.14-1.22)	0.94	(0.90-0.97)

Note: RRR = Relative risk ratio. CI = confidence interval. MSA = Metropolitan Statistical Area. Model contains full set of covariates listed and state fixed effects. Coefficients for state covariates are not listed due to the large number of coefficients and lack of specific relevance; the full model results are available on request.

Table 3.8 Multinomial Logistic Regression Analysis of Health Insurance Coverage for EMPLOYED MEN

	Adjusted RRR (95% CI)			
	Employer vs. Uninsured	Direct Purchase vs. Uninsured	Medicaid vs. Uninsured	Medicare vs. Uninsured
Relationship type				
Married opposite-sex couple	1.00 Reference	1.00 Reference	1.00 Reference	1.00 Reference
Same-sex couple	0.58 (0.53-0.63)	0.79 (0.70-0.89)	1.23 (0.98-1.55)	1.10 (0.84-1.45)
Unmarried opposite-sex couple	0.36 (0.35-0.36)	0.47 (0.45-0.49)	0.44 (0.42-0.47)	0.48 (0.43-0.54)
Age (years)				
25-34	0.47 (0.45-0.48)	0.30 (0.29-0.31)	1.04 (0.97-1.11)	0.14 (0.12-0.15)
35-44	0.52 (0.51-0.54)	0.41 (0.40-0.43)	0.94 (0.88-1.00)	0.22 (0.20-0.24)
45-54	0.67 (0.66-0.69)	0.63 (0.61-0.65)	0.91 (0.85-0.97)	0.35 (0.32-0.38)
55-64	1.00 Reference	1.00 Reference	2.00 Reference	3.00 Reference
Race/Ethnicity				
White	1.00 Reference	1.00 Reference	1.00 Reference	1.00 Reference
Hispanic	0.74 (0.72-0.76)	0.34 (0.32-0.36)	0.63 (0.59-0.67)	0.84 (0.74-0.95)
Black	1.06 (1.03-1.09)	0.40 (0.38-0.42)	1.31 (1.22-1.40)	1.85 (1.67-2.05)
Asian	1.02 (0.98-1.07)	0.84 (0.79-0.89)	1.56 (1.44-1.69)	1.65 (1.40-1.95)
Multiple/Other Races	0.69 (0.65-0.73)	0.47 (0.43-0.52)	1.12 (1.01-1.24)	1.10 (0.91-1.31)
Educational Attainment				
Less than high school	0.25 (0.24-0.26)	0.20 (0.19-0.20)	1.08 (1.01-1.15)	0.52 (0.46-0.58)
High school degree or GED	0.39 (0.38-0.41)	0.33 (0.31-0.34)	0.99 (0.93-1.06)	0.60 (0.54-0.65)
Some college or vocational	0.57 (0.55-0.58)	0.48 (0.46-0.49)	1.02 (0.96-1.09)	0.75 (0.68-0.82)
College degree	1.00 Reference	1.00 Reference	1.00 Reference	1.00 Reference

Table 3.8 Multinomial Logistic Regression Analysis of Health Insurance Coverage for EMPLOYED MEN

Couple's combined income								
0-34,999	0.21	(0.21-0.22)	0.42	(0.41-0.44)	2.97	(2.82-3.13)	0.53	(0.49-0.58)
35,000-49,999	0.50	(0.48-0.51)	0.64	(0.61-0.66)	1.51	(1.42-1.60)	0.72	(0.65-0.79)
50,000-74,999	1.00	Reference	1.00	Reference	1.00	Reference	1.00	Reference
75,000-99,999	1.83	(1.78-1.88)	1.42	(1.37-1.48)	0.67	(0.61-0.74)	1.37	(1.24-1.53)
100,000-149,999	2.71	(2.61-2.80)	1.86	(1.78-1.94)	0.66	(0.59-0.74)	1.67	(1.49-1.86)
>150,000	3.20	(3.05-3.36)	2.93	(2.77-3.10)	0.61	(0.52-0.72)	2.10	(1.83-2.41)
Part-time employment	0.43	(0.42-0.44)	0.93	(0.91-0.96)	1.27	(1.22-1.32)	2.13	(1.99-2.27)
Children under 18 years in household	1.12	(1.10-1.14)	1.18	(1.15-1.21)	4.07	(3.89-4.26)	0.85	(0.79-0.93)
Citizenship								
Citizen	1.00	Reference	1.00	Reference	1.00	Reference	1.00	Reference
Naturalized	0.54	(0.52-0.56)	0.87	(0.83-0.91)	0.84	(0.79-0.90)	0.57	(0.50-0.65)
Non-citizen	0.26	(0.25-0.26)	0.38	(0.36-0.40)	0.36	(0.33-0.38)	0.29	(0.25-0.34)
Disabled	0.90	(0.86-0.94)	0.65	(0.60-0.70)	2.19	(2.03-2.37)	7.07	(6.51-7.68)
MSA residence	1.18	(1.16-1.21)	0.93	(0.90-0.95)	0.96	(0.91-1.01)	1.06	(0.97-1.15)
Year								
2008	1.00	Reference	1.00	Reference	1.00	Reference	1.00	Reference
2009	1.01	(0.99-1.03)	0.99	(0.96-1.01)	1.07	(1.03-1.12)	0.85	(0.79-0.92)
2010	0.97	(0.95-0.99)	0.93	(0.91-0.96)	1.19	(1.14-1.24)	0.80	(0.74-0.87)

Note: RRR = Relative risk ratio. CI = confidence interval. MSA = Metropolitan Statistical Area. Model contains full set of covariates listed and state fixed effects. Coefficients for state covariates are not listed due to the large number of coefficients and lack of specific relevance; the full model results are available on request.

Table 3.9 Multinomial Logistic Regression Analysis of Health Insurance Coverage for ALL WOMEN

	Adjusted RRR (95% CI)							
	Employer vs. Uninsured		Direct Purchase vs. Uninsured		Medicaid vs. Uninsured		Medicare vs. Uninsured	
Relationship type								
Married opposite-sex couple	1.00	Reference	1.00	Reference	1.00	Reference	1.00	Reference
Same-sex couple	0.46	(0.43-0.50)	0.62	(0.56-0.69)	1.00	(0.88-1.13)	1.11	(0.97-1.26)
Unmarried opposite-sex couple	0.27	(0.27-0.28)	0.43	(0.42-0.45)	1.35	(1.31-1.39)	0.90	(0.86-0.95)
Age (years)								
25-34	0.46	(0.44-0.47)	0.30	(0.29-0.31)	1.51	(1.45-1.57)	0.15	(0.14-0.16)
35-44	0.51	(0.50-0.52)	0.39	(0.38-0.40)	1.11	(1.07-1.16)	0.29	(0.27-0.30)
45-54	0.65	(0.64-0.66)	0.56	(0.54-0.57)	0.94	(0.91-0.98)	0.45	(0.44-0.47)
55-64	1.00	Reference	1.00	Reference	1.00	Reference	1.00	Reference
Race/Ethnicity								
White	1.00	Reference	1.00	Reference	1.00	Reference	1.00	Reference
Hispanic	0.67	(0.65-0.69)	0.37	(0.36-0.39)	0.82	(0.79-0.85)	0.74	(0.70-0.78)
Black	0.96	(0.94-0.99)	0.47	(0.45-0.50)	1.66	(1.59-1.73)	1.49	(1.42-1.57)
Asian	1.01	(0.97-1.05)	0.92	(0.88-0.97)	1.51	(1.43-1.59)	1.05	(0.95-1.15)
Multiple/Other Races	0.67	(0.64-0.70)	0.50	(0.46-0.53)	1.07	(1.00-1.14)	0.90	(0.82-0.98)
Educational Attainment								
Less than high school	0.24	(0.23-0.24)	0.19	(0.18-0.20)	1.48	(1.41-1.55)	0.48	(0.46-0.51)
High school graduate	0.40	(0.39-0.41)	0.35	(0.34-0.36)	1.21	(1.16-1.27)	0.60	(0.58-0.63)
Some college	0.54	(0.53-0.55)	0.50	(0.49-0.52)	1.23	(1.18-1.28)	0.81	(0.77-0.85)
College degree	1.00	Reference	1.00	Reference	1.00	Reference	1.00	Reference

Table 3.9 Multinomial Logistic Regression Analysis of Health Insurance Coverage for ALL WOMEN

Couple's combined income ($)								
0-34,999	0.18	(0.18-0.19)	0.39	(0.38-0.40)	2.31	(2.23-2.40)	0.53	(0.51-0.56)
35,000-49,999	0.49	(0.48-0.50)	0.63	(0.62-0.65)	1.31	(1.25-1.36)	0.72	(0.69-0.76)
50,000-74,999	1.00	Reference	1.00	Reference	1.00	Reference	1.00	Reference
75,000-99,999	1.83	(1.79-1.88)	1.43	(1.38-1.48)	0.82	(0.77-0.88)	1.35	(1.28-1.43)
100,000-149,999	2.67	(2.59-2.76)	1.90	(1.83-1.97)	0.78	(0.72-0.85)	1.45	(1.37-1.55)
>150,000	3.31	(3.17-3.45)	3.24	(3.09-3.39)	0.73	(0.65-0.82)	1.32	(1.22-1.44)
Employment								
Part-time	0.47	(0.47-0.48)	1.21	(1.18-1.24)	1.27	(1.23-1.32)	1.42	(1.33-1.53)
Unemployed	0.20	(0.19-0.2)	0.54	(0.51-0.56)	1.37	(1.31-1.43)	0.82	(0.74-0.91)
Not in labor force	0.43	(0.42-0.44)	1.29	(1.26-1.32)	1.86	(1.80-1.93)	7.13	(6.75-7.53)
Children under 18 years in household	1.14	(1.12-1.16)	1.01	(0.98-1.03)	2.39	(2.32-2.46)	0.76	(0.73-0.80)
Citizenship								
Citizen	1.00	Reference	1.00	Reference	1.00	Reference	1.00	Reference
Naturalized	0.62	(0.60-0.64)	0.96	(0.93-1.00)	0.85	(0.81-0.88)	0.67	(0.62-0.71)
Non-citizen	0.30	(0.29-0.31)	0.45	(0.43-0.47)	0.35	(0.34-0.36)	0.21	(0.19-0.23)
Disabled	0.87	(0.84-0.89)	0.54	(0.52-0.56)	3.34	(3.23-3.45)	8.87	(8.57-9.19)
MSA residence	1.32	(1.29-1.34)	1.09	(1.07-1.12)	1.01	(0.98-1.04)	1.10	(1.07-1.15)
Year								
2008	1.00	Reference	1.00	Reference	1.00	Reference	1.00	Reference
2009	0.98	(0.96-0.99)	0.96	(0.94-0.98)	1.06	(1.03-1.09)	0.99	(0.96-1.03)
2010	0.95	(0.93-0.96)	0.91	(0.89-0.93)	1.17	(1.14-1.2)	1.02	(0.99-1.06)

Note: RRR = Relative risk ratio. CI = confidence interval. MSA = Metropolitan Statistical Area. Model contains full set of covariates listed and state fixed effects. Coefficients for state covariates are not listed due to the large number of coefficients and lack of specific relevance; the full model results are available on request.

Table 3.10 Multinomial Logistic Regression Analysis of Health Insurance Coverage for EMPLOYED WOMEN

	Adjusted RRR (95% CI)							
	Employer vs. Uninsured		Direct Purchase vs. Uninsured		Medicaid vs. Uninsured		Medicare vs. Uninsured	
Relationship type								
Married opposite-sex couple	1.00	Reference	1.00	Reference	1.00	Reference	1.00	Reference
Same-sex couple	0.50	(0.46-0.55)	0.67	(0.60-0.76)	0.79	(0.66-0.95)	0.98	(0.75-1.27)
Unmarried opposite-sex couple	0.35	(0.34-0.36)	0.49	(0.47-0.51)	1.17	(1.11-1.22)	0.67	(0.60-0.76)
Age (years)								
25-34	0.45	(0.44-0.47)	0.29	(0.28-0.31)	1.61	(1.49-1.74)	0.15	(0.13-0.17)
35-44	0.52	(0.50-0.54)	0.39	(0.37-0.41)	1.15	(1.06-1.24)	0.24	(0.22-0.27)
45-54	0.69	(0.67-0.71)	0.58	(0.56-0.61)	0.96	(0.89-1.04)	0.35	(0.32-0.38)
55-64	1.00	Reference	1.00	Reference	1.00	Reference	1.00	Reference
Race/Ethnicity								
White	1.00	Reference	1.00	Reference	1.00	Reference	1.00	Reference
Hispanic	0.71	(0.69-0.74)	0.39	(0.37-0.42)	0.90	(0.85-0.96)	0.84	(0.72-0.97)
Black	1.02	(0.98-1.06)	0.48	(0.45-0.51)	1.57	(1.47-1.68)	1.96	(1.75-2.20)
Asian	0.94	(0.9-0.99)	0.93	(0.87-0.99)	1.71	(1.57-1.86)	1.37	(1.13-1.65)
Multiple/Other Races	0.65	(0.61-0.69)	0.50	(0.45-0.55)	0.98	(0.88-1.09)	1.17	(0.95-1.45)
Educational Attainment								
Less than high school	0.25	(0.24-0.26)	0.21	(0.2-0.23)	1.24	(1.15-1.34)	0.53	(0.46-0.61)
High school degree or GED	0.40	(0.39-0.41)	0.36	(0.35-0.38)	1.13	(1.06-1.21)	0.57	(0.51-0.63)
Some college or vocational	0.54	(0.52-0.55)	0.51	(0.50-0.53)	1.18	(1.11-1.26)	0.69	(0.63-0.77)
College degree	1.00	Reference	1.00	Reference	1.00	Reference	1.00	Reference

Table 3.9 Multinomial Logistic Regression Analysis of Health Insurance Coverage for ALL WOMEN

Couple's combined income								
0-34,999	0.20	(0.20-0.21)	0.39	(0.37-0.41)	2.57	(2.43-2.71)	0.63	(0.57-0.69)
35,000-49,999	0.47	(0.46-0.49)	0.62	(0.59-0.64)	1.46	(1.37-1.55)	0.79	(0.71-0.87)
50,000-74,999	1.00	Reference	1.00	Reference	1.00	Reference	1.00	Reference
75,000-99,999	1.93	(1.87-1.99)	1.48	(1.42-1.55)	0.77	(0.70-0.84)	1.43	(1.27-1.61)
100,000-149,999	2.91	(2.80-3.03)	2.02	(1.92-2.12)	0.68	(0.61-0.76)	1.79	(1.57-2.04)
>150,000	3.61	(3.42-3.82)	3.27	(3.07-3.48)	0.68	(0.57-0.81)	1.88	(1.60-2.22)
Part-time employment	0.49	(0.48-0.50)	1.23	(1.20-1.27)	1.25	(1.20-1.29)	1.41	(1.32-1.52)
Children under 18 years in household	1.14	(1.12-1.17)	1.03	(0.99-1.06)	3.24	(3.09-3.39)	0.85	(0.77-0.94)
Citizenship								
Citizen	1.00	Reference	1.00	Reference	1.00	Reference	1.00	Reference
Naturalized	0.64	(0.62-0.67)	0.98	(0.93-1.04)	0.87	(0.82-0.94)	0.72	(0.61-0.84)
Non-citizen	0.28	(0.27-0.29)	0.45	(0.43-0.48)	0.41	(0.39-0.44)	0.38	(0.32-0.45)
Disabled	0.82	(0.78-0.86)	0.60	(0.56-0.65)	2.00	(1.86-2.16)	6.42	(5.87-7.01)
MSA residence	1.24	(1.21-1.27)	1.02	(0.99-1.05)	1.01	(0.96-1.07)	1.11	(1.02-1.22)
Year								
2008	1.00	Reference	1.00	Reference	1.00	Reference	1.00	Reference
2009	0.99	(0.97-1.01)	0.97	(0.94-1.00)	1.03	(0.99-1.08)	0.84	(0.77-0.91)
2010	0.95	(0.92-0.97)	0.92	(0.9-0.95)	1.12	(1.07-1.16)	0.83	(0.76-0.9)

Note: RRR = Relative risk ratio. CI = confidence interval. MSA = Metropolitan Statistical Area. Model contains full set of covariates listed and state fixed effects. Coefficients for state covariates are not listed due to the large number of coefficients and lack of specific relevance; the full model results are available on request.

Sensitivity Analyses

The following tables present the results from the sensitivity analysis, which restricts the sample to respondents using the CATI/CAPI response mode or the mail response mode and not receiving an allocation flag for marital status (Gates & Steinberger 2009). Results from the sensitivity analyses do not change the main findings. Individual men and women in cohabiting same-sex couples are less likely to have employer-sponsored insurance (ESI) compared to their counterparts in married cohabiting opposite-sex couples. Differences in ESI were widest in the Midwest (for women) and in the South (for men). Also, differences in ESI were narrower for women in cohabiting same-sex couples living in states with same-sex marriage, civil unions or broad domestic partnerships for same-sex couples.

Table 3.11 Sample Descriptive Statistics, by Relationship Type for the Sensitivity Sample

	Men			Women		
	Same-Sex, Weighted Mean, %	Opposite-Sex Unmarried, Weighted Mean, %	Opposite-Sex Married, Weighted Mean, %	Same-Sex, Weighted Mean, %	Opposite-Sex Unmarried, Weighted Mean, %	Opposite-Sex Married, Weighted Mean, %
Age (years)						
25-34	21.1	43.4	17.6	23.4	45.0	20.2
35-44	32.9	26.5	27.1	29.7	25.8	27.2
45-54	31.1	19.9	30.0	31.5	20.1	29.4
55-64	14.9	10.2	25.4	15.3	9.1	23.2
Race/Ethnicity						
Non-Hispanic White	77.1	62.7	70.5	77.3	64.6	70.9
Non-Hispanic Black	5.2	13.8	7.7	7.3	11.1	7.1
Non-Hispanic Asian	3.4	1.9	5.6	1.6	2.9	6.5
Non-Hispanic Other/Multiple Races	2.2	2.9	1.8	2.8	3.1	1.9
Hispanic	12.1	18.7	14.4	11.0	18.3	13.5
Educational Attainment						
Less than high school	4.9	17.8	11.7	4.9	14.6	9.8
High school degree or GED	15.9	34.1	25.8	16.4	28.5	25.1
Some college or vocational	31.2	29.9	28.8	31.4	34.2	31.4
College degree	48.0	18.2	33.7	47.3	22.7	33.7
Couple's combined income						

Table 3.11 Sample Descriptive Statistics, by Relationship Type for the Sensitivity Sample

	Men			Women		
	Same-Sex, Weighted Mean, %	Opposite-Sex Unmarried, Weighted Mean, %	Opposite-Sex Married, Weighted Mean, %	Same-Sex, Weighted Mean, %	Opposite-Sex Unmarried, Weighted Mean, %	Opposite-Sex Married, Weighted Mean, %
0-34,999	11.1	29.8	17.0	15.3	28.8	17.5
35,000-49,999	9.0	16.7	12.1	10.8	16.1	12.1
50,000-74,999	16.5	23.1	21.2	20.3	23.0	21.0
75,000-99,999	15.5	14.0	17.1	17.4	14.4	16.9
100,000-149,999	22.6	11.0	18.7	20.5	11.7	18.6
>150,000	25.4	5.5	13.9	15.7	6.1	13.9
Employment						
Full-Time	71.4	68.5	77.3	68.5	55.2	47.1
Part time	10.7	10.9	7.4	13.9	17.1	19.6
Unemployed	5.2	9.9	4.7	4.6	7.3	3.9
Not in labor force	12.8	10.7	10.6	13.0	20.4	29.4
Children under 18 years in household	9.4	40.5	50.3	23.3	39.8	48.4
Region						
Northeast	20.0	19.6	17.9	20.7	19.8	18.0
Midwest	17.5	23.0	22.4	20.0	22.7	22.4
South	33.8	32.6	36.6	32.2	32.7	36.6
West	28.7	24.8	23.1	27.2	24.9	23.0
Citizenship						
Citizen	89.1	85.2	80.5	94.1	85.0	80.8
Naturalized	5.4	3.6	8.8	3.0	4.5	9.0

Table 3.11 Sample Descriptive Statistics, by Relationship Type for the Sensitivity Sample

	Men			Women		
	Same-Sex, Weighted Mean, %	Opposite-Sex Unmarried, Weighted Mean, %	Opposite-Sex Married, Weighted Mean, %	Same-Sex, Weighted Mean, %	Opposite-Sex Unmarried, Weighted Mean, %	Opposite-Sex Married, Weighted Mean, %
Non-citizen	5.5	11.3	10.7	2.9	10.5	10.2
Disabled	5.9	6.7	5.7	8.4	8.1	6.2
MSA residence	93.4	84.0	83.7	90.2	84.1	83.5
Primary source of health insurance						
Employer	70.1	51.1	74.6	71.5	50.3	74.2
Direct Purchase	8.3	5.1	6.1	6.5	5.2	6.9
Medicaid	3.5	5.9	3.2	4.5	13.0	4.0
Medicare	3.4	2.4	2.7	2.8	2.9	2.3
Uninsured	14.7	35.5	13.4	14.7	28.5	12.7
Sample Size	12,219	129,372	1,479,694	12,365	121,873	1,557,611

Note: GED = general equivalency diploma. FPG = federal poverty guidelines. Weighted means are for adults aged 25 to 64 years.
Source: 2008-2010 American Community Survey

Table 3.12 Multinomial Logistic Regression Analysis of Health Insurance Coverage for ALL MEN in Sensitivity Sample

	Adjusted RRR (95% CI)							
	Employer vs. Uninsured		Direct Purchase vs. Uninsured		Medicaid vs. Uninsured		Medicare vs. Uninsured	
Relationship type								
Married opposite-sex couple	1.00	Reference	1.00	Reference	1.00	Reference	1.00	Reference
Same-sex couple	0.44	(0.41-0.48)	0.66	(0.59-0.74)	1.32	(1.11-1.56)	0.98	(0.84-1.15)
Unmarried opposite-sex couple	0.32	(0.31-0.32)	0.44	(0.43-0.46)	0.52	(0.50-0.54)	0.46	(0.44-0.49)
Age (years)								
25-34	0.41	(0.40-0.42)	0.30	(0.29-0.31)	1.07	(1.02-1.12)	0.14	(0.13-0.15)
35-44	0.46	(0.45-0.47)	0.39	(0.38-0.40)	0.96	(0.91-1.00)	0.28	(0.27-0.3)
45-54	0.59	(0.58-0.60)	0.59	(0.57-0.61)	0.93	(0.89-0.97)	0.48	(0.46-0.5)
55-64								
Race/Ethnicity								
White	1.00	Reference	1.00	Reference	1.00	Reference	1.00	Reference
Hispanic	0.73	(0.71-0.75)	0.33	(0.32-0.35)	0.70	(0.67-0.73)	0.79	(0.75-0.84)
Black	0.98	(0.96-1.01)	0.39	(0.37-0.41)	1.36	(1.30-1.43)	1.07	(1.01-1.12)
Asian	0.99	(0.95-1.03)	0.83	(0.78-0.87)	1.54	(1.44-1.64)	0.99	(0.90-1.10)
Multiple/Other Races	0.66	(0.63-0.69)	0.44	(0.41-0.48)	1.06	(0.98-1.14)	0.82	(0.74-0.89)
Educational Attainment								
Less than high school	0.25	(0.24-0.26)	0.19	(0.18-0.19)	1.29	(1.23-1.36)	0.75	(0.71-0.8)
High school graduate	0.41	(0.40-0.42)	0.31	(0.31-0.32)	1.07	(1.02-1.12)	0.80	(0.76-0.83)
Some college	0.59	(0.58-0.61)	0.47	(0.46-0.48)	1.05	(1.00-1.11)	0.92	(0.88-0.96)
College degree	1.00	Reference	1.00	Reference	1.00	Reference	1.00	Reference
Couple's combined income ($)								
0-34,999	0.21	(0.20-0.21)	0.43	(0.42-0.45)	2.79	(2.67-2.91)	0.52	(0.50-0.54)

Table 3.12 Multinomial Logistic Regression Analysis of Health Insurance Coverage for ALL MEN in Sensitivity Sample

35,000-49,999	0.51	(0.50-0.52)	0.65	(0.63-0.67)	1.40	(1.33-1.47)	0.73	(0.70-0.77)
50,000-74,999	1.00	Reference	1.00	Reference	1.00	Reference	1.00	Reference
75,000-99,999	1.81	(1.76-1.86)	1.41	(1.36-1.46)	0.76	(0.70-0.82)	1.45	(1.37-1.53)
100,000-149,999	2.67	(2.58-2.75)	1.82	(1.75-1.90)	0.75	(0.68-0.83)	1.68	(1.57-1.79)
>150,000	3.13	(2.99-3.28)	2.93	(2.79-3.09)	0.69	(0.60-0.80)	1.66	(1.52-1.82)
Employment								
Full-time	1.00	Reference	1.00	Reference	1.00	Reference	1.00	Reference
Part-time	0.42	(0.41-0.43)	0.92	(0.89-0.95)	1.24	(1.20-1.29)	2.31	(2.17-2.47)
Unemployed	0.21	(0.21-0.22)	0.40	(0.38-0.41)	1.29	(1.24-1.34)	0.96	(0.88-1.05)
Not in labor force	0.55	(0.54-0.56)	1.01	(0.98-1.04)	2.75	(2.65-2.86)	19.49	(18.56-20.48)
Children under 18 years in household	1.11	(1.10-1.13)	1.14	(1.11-1.17)	3.38	(3.27-3.49)	1.13	(1.09-1.18)
Citizenship								
Citizen	1.00	Reference	1.00	Reference	1.00	Reference	1.00	Reference
Naturalized	0.53	(0.51-0.55)	0.85	(0.82-0.89)	0.83	(0.79-0.88)	0.65	(0.60-0.69)
Non-citizen	0.26	(0.25-0.27)	0.41	(0.39-0.42)	0.35	(0.33-0.36)	0.22	(0.20-0.24)
Disabled	1.05	(1.02-1.09)	0.62	(0.59-0.65)	3.17	(3.04-3.30)	6.79	(6.54-7.05)
MSA residence	1.20	(1.17-1.22)	0.97	(0.94-0.99)	0.94	(0.91-0.98)	0.97	(0.93-1.00)
Year								
2008	1.00	Reference	1.00	Reference	1.00	Reference	1.00	Reference
2009	1.00	(0.98-1.01)	0.97	(0.95-1.00)	1.08	(1.04-1.11)	0.95	(0.92-0.98)
2010	0.96	(0.95-0.98)	0.93	(0.9-0.95)	1.18	(1.15-1.22)	0.94	(0.91-0.97)

Note: RRR = Relative risk ratio. CI = confidence interval. MSA = Metropolitan Statistical Area. Model contains full set of covariates listed and state fixed effects. Coefficients for state covariates are not listed due to the large number of coefficients and lack of specific relevance; the full model results are available on request.

Table 3.13 Multinomial Logistic Regression Analysis of Health Insurance Coverage for EMPLOYED MEN in Sensitivity Sample

	Adjusted RRR (95% CI)							
	Employer vs. Uninsured		Direct Purchase vs. Uninsured		Medicaid vs. Uninsured		Medicare vs. Uninsured	
Relationship type								
Married opposite-sex couple	1.00	Reference	1.00	Reference	1.00	Reference	1.00	Reference
Same-sex couple	0.52	(0.47-0.57)	0.73	(0.64-0.83)	1.21	(0.92-1.58)	1.05	(0.77-1.44)
Unmarried opposite-sex couple	0.35	(0.34-0.36)	0.47	(0.45-0.48)	0.44	(0.42-0.46)	0.46	(0.41-0.52)
Age (years)								
25-34	0.47	(0.46-0.48)	0.30	(0.29-0.31)	1.02	(0.96-1.09)	0.14	(0.12-0.15)
35-44	0.52	(0.51-0.54)	0.41	(0.40-0.43)	0.92	(0.86-0.98)	0.22	(0.20-0.24)
45-54	0.67	(0.66-0.69)	0.63	(0.61-0.65)	0.90	(0.84-0.96)	0.34	(0.32-0.37)
55-64	1.00	Reference	1.00	Reference	1.00	Reference	1.00	Reference
Race/Ethnicity								
White	1.00	Reference	1.00	Reference	1.00	Reference	1.00	Reference
Hispanic	0.74	(0.72-0.76)	0.34	(0.32-0.35)	0.62	(0.58-0.66)	0.83	(0.72-0.95)
Black	1.06	(1.03-1.10)	0.40	(0.37-0.42)	1.29	(1.20-1.38)	1.84	(1.65-2.04)
Asian	1.03	(0.98-1.07)	0.84	(0.79-0.89)	1.52	(1.41-1.65)	1.67	(1.41-1.98)
Multiple/Other Races	0.69	(0.65-0.73)	0.47	(0.43-0.51)	1.10	(0.99-1.22)	1.05	(0.87-1.27)
Educational Attainment								
Less than high school	0.25	(0.24-0.25)	0.19	(0.19-0.20)	1.07	(1.00-1.14)	0.51	(0.46-0.57)
High school degree or GED	0.40	(0.39-0.41)	0.33	(0.31-0.34)	0.99	(0.93-1.06)	0.60	(0.55-0.66)
Some college or vocational	0.57	(0.55-0.58)	0.48	(0.46-0.49)	1.02	(0.96-1.09)	0.76	(0.69-0.83)
College degree	1.00	Reference	1.00	Reference	1.00	Reference	1.00	Reference
Couple's combined income								

Table 3.13 Multinomial Logistic Regression Analysis of Health Insurance Coverage for EMPLOYED MEN in Sensitivity Sample

0-34,999	0.21	(0.21-0.22)	0.42	(0.41-0.44)	3.02	(2.86-3.19)	0.53	(0.48-0.58)
35,000-49,999	0.49	(0.48-0.51)	0.63	(0.61-0.66)	1.52	(1.43-1.62)	0.72	(0.65-0.79)
50,000-74,999	1.00	Reference	1.00	Reference	1.00	Reference	1.00	Reference
75,000-99,999	1.83	(1.78-1.88)	1.43	(1.37-1.48)	0.67	(0.61-0.73)	1.38	(1.24-1.54)
100,000-149,999	2.74	(2.64-2.83)	1.88	(1.80-1.96)	0.65	(0.58-0.73)	1.68	(1.50-1.89)
>150,000	3.24	(3.09-3.41)	2.97	(2.80-3.14)	0.58	(0.49-0.69)	2.11	(1.83-2.42)
Part-time employment	0.43	(0.42-0.44)	0.93	(0.91-0.96)	1.27	(1.22-1.32)	2.15	(2.01-2.3)
Children under 18 years in household	1.12	(1.10-1.14)	1.18	(1.15-1.21)	4.26	(4.07-4.47)	0.87	(0.8-0.95)
Citizenship								
Citizen	1.00	Reference	1.00	Reference	1.00	Reference	1.00	Reference
Naturalized	0.54	(0.52-0.56)	0.87	(0.83-0.91)	0.85	(0.79-0.90)	0.57	(0.50-0.65)
Non-citizen	0.26	(0.25-0.26)	0.38	(0.36-0.40)	0.36	(0.34-0.38)	0.29	(0.25-0.34)
Disabled	0.90	(0.86-0.95)	0.65	(0.60-0.70)	2.18	(2.02-2.36)	7.24	(6.66-7.87)
MSA residence	1.19	(1.16-1.21)	0.92	(0.9-0.95)	0.96	(0.91-1.01)	1.04	(0.96-1.14)
Year								
2008	1.00	Reference	1.00	Reference	1.00	Reference	1.00	Reference
2009	1.02	(1.00-1.04)	0.99	(0.96-1.02)	1.08	(1.04-1.13)	0.85	(0.79-0.92)
2010	0.97	(0.95-0.99)	0.93	(0.91-0.96)	1.19	(1.15-1.24)	0.80	(0.74-0.86)

Note: RRR = Relative risk ratio. CI = confidence interval. MSA = Metropolitan Statistical Area. Model contains full set of covariates listed and state fixed effects. Coefficients for state covariates are not listed due to the large number of coefficients and lack of specific relevance; the full model results are available on request.

Table 3.14 Multinomial Logistic Regression Analysis of Health Insurance Coverage for ALL WOMEN in Sensitivity Sample

	Adjusted RRR (95% CI)							
	Employer vs. Uninsured		Direct Purchase vs. Uninsured		Medicaid vs. Uninsured		Medicare vs. Uninsured	
Relationship type								
Married opposite-sex couple	1.00	Reference	1.00	Reference	1.00	Reference	1.00	Reference
Same-sex couple	0.41	(0.38-0.45)	0.56	(0.50-0.63)	0.97	(0.84-1.11)	1.04	(0.89-1.22)
Unmarried opposite-sex couple	0.27	(0.26-0.28)	0.43	(0.41-0.44)	1.36	(1.32-1.40)	0.90	(0.86-0.95)
Age (years)								
25-34	0.46	(0.45-0.47)	0.30	(0.29-0.31)	1.47	(1.41-1.54)	0.15	(0.14-0.16)
35-44	0.51	(0.50-0.52)	0.39	(0.37-0.40)	1.09	(1.05-1.14)	0.29	(0.27-0.30)
45-54	0.65	(0.64-0.66)	0.55	(0.54-0.57)	0.94	(0.90-0.97)	0.45	(0.44-0.47)
55-64								
Race/Ethnicity								
White	1.00	Reference	1.00	Reference	1.00	Reference	1.00	Reference
Hispanic	0.67	(0.65-0.69)	0.37	(0.36-0.39)	0.81	(0.78-0.85)	0.74	(0.70-0.79)
Black	0.97	(0.94-0.99)	0.48	(0.45-0.50)	1.65	(1.58-1.72)	1.49	(1.42-1.57)
Asian	1.02	(0.98-1.06)	0.93	(0.89-0.97)	1.49	(1.41-1.58)	1.05	(0.95-1.15)
Multiple/Other Races	0.67	(0.64-0.70)	0.50	(0.46-0.53)	1.07	(1.00-1.14)	0.89	(0.82-0.98)
Educational Attainment								
Less than high school	0.24	(0.23-0.24)	0.19	(0.18-0.19)	1.46	(1.39-1.53)	0.48	(0.45-0.50)
High school graduate	0.40	(0.39-0.41)	0.35	(0.34-0.36)	1.20	(1.15-1.26)	0.60	(0.57-0.63)
Some college	0.54	(0.53-0.55)	0.50	(0.49-0.52)	1.22	(1.17-1.28)	0.81	(0.77-0.85)
College degree	1.00	Reference	1.00	Reference	1.00	Reference	1.00	Reference
Couple's combined income ($)								
0-34,999	0.18	(0.18-0.19)	0.39	(0.38-0.40)	2.34	(2.26-2.43)	0.53	(0.51-0.55)

Table 3.14 Multinomial Logistic Regression Analysis of Health Insurance Coverage for ALL WOMEN in Sensitivity Sample

35,000-49,999	0.49	(0.48-0.5)	0.63	(0.62-0.65)	1.31	(1.26-1.37)	0.72	(0.69-0.75)
50,000-74,999	1.00	Reference	1.00	Reference	1.00	Reference	1.00	Reference
75,000-99,999	1.84	(1.79-1.89)	1.44	(1.39-1.49)	0.82	(0.77-0.88)	1.36	(1.29-1.44)
100,000-149,999	2.70	(2.61-2.78)	1.92	(1.84-1.99)	0.76	(0.70-0.83)	1.47	(1.38-1.56)
>150,000	3.33	(3.2-3.48)	3.26	(3.11-3.42)	0.72	(0.64-0.81)	1.33	(1.23-1.45)
Employment								
Full-time	1.00	Reference	1.00	Reference	1.00	Reference	1.00	Reference
Part-time	0.47	(0.46-0.48)	1.21	(1.18-1.24)	1.27	(1.23-1.32)	1.44	(1.34-1.54)
Unemployed	0.20	(0.19-0.20)	0.54	(0.51-0.56)	1.37	(1.31-1.43)	0.83	(0.74-0.92)
Not in labor force	0.43	(0.42-0.44)	1.30	(1.27-1.33)	1.86	(1.80-1.92)	7.33	(6.93-7.76)
Children under 18 years in household	1.13	(1.11-1.15)	1.01	(0.98-1.03)	2.46	(2.39-2.53)	0.76	(0.73-0.80)
Citizenship								
Citizen	1.00	Reference	1.00	Reference	1.00	Reference	1.00	Reference
Naturalized	0.62	(0.60-0.64)	0.96	(0.93-1.00)	0.85	(0.82-0.89)	0.67	(0.63-0.72)
Non-citizen	0.30	(0.29-0.31)	0.45	(0.43-0.46)	0.35	(0.34-0.37)	0.21	(0.19-0.23)
Disabled	0.87	(0.85-0.89)	0.54	(0.52-0.56)	3.38	(3.27-3.50)	9.04	(8.73-9.36)
MSA residence	1.32	(1.29-1.34)	1.09	(1.07-1.12)	1.01	(0.98-1.04)	1.10	(1.06-1.15)
Year								
2008	1.00	Reference	1.00	Reference	1.00	Reference	1.00	Reference
2009	0.98	(0.96-1.00)	0.96	(0.94-0.98)	1.07	(1.04-1.10)	0.99	(0.96-1.03)
2010	0.95	(0.93-0.96)	0.91	(0.89-0.93)	1.18	(1.14-1.21)	1.02	(0.98-1.06)

Note: RRR = Relative risk ratio. CI = confidence interval. MSA = Metropolitan Statistical Area. Model contains full set of covariates listed and state fixed effects. Coefficients for state covariates are not listed due to the large number of coefficients and lack of specific relevance; the full model results are available on request.

Table 3.15 Multinomial Logistic Regression Analysis of Health Insurance Coverage for EMPLOYED WOMEN in Sensitivity Sample

	Adjusted RRR (95% CI)							
	Employer vs. Uninsured		Direct Purchase vs. Uninsured		Medicaid vs. Uninsured		Medicare vs. Uninsured	
Relationship type								
Married opposite-sex couple	1.00	Reference	1.00	Reference	1.00	Reference	1.00	Reference
Same-sex couple	0.46	(0.42-0.50)	0.61	(0.53-0.70)	0.75	(0.60-0.92)	0.73	(0.52-1.04)
Unmarried opposite-sex couple	0.35	(0.34-0.36)	0.49	(0.46-0.51)	1.17	(1.12-1.23)	0.65	(0.57-0.73)
Age (years)								
25-34	0.46	(0.44-0.47)	0.29	(0.28-0.30)	1.58	(1.46-1.70)	0.15	(0.13-0.17)
35-44	0.52	(0.50-0.54)	0.39	(0.37-0.41)	1.12	(1.04-1.21)	0.24	(0.22-0.28)
45-54	0.69	(0.67-0.71)	0.58	(0.56-0.60)	0.95	(0.88-1.02)	0.35	(0.32-0.38)
55-64	1.00	Reference	1.00	Reference	1.00	Reference	1.00	Reference
Race/Ethnicity								
White	1.00	Reference	1.00	Reference	1.00	Reference	1.00	Reference
Hispanic	0.72	(0.69-0.74)	0.39	(0.37-0.42)	0.89	(0.84-0.95)	0.84	(0.72-0.97)
Black	1.02	(0.99-1.06)	0.48	(0.45-0.51)	1.57	(1.47-1.68)	1.96	(1.74-2.20)
Asian	0.95	(0.90-1.00)	0.94	(0.88-1.00)	1.70	(1.56-1.85)	1.39	(1.15-1.69)
Multiple/Other Races	0.65	(0.61-0.69)	0.50	(0.45-0.55)	0.98	(0.87-1.09)	1.16	(0.93-1.44)
Educational Attainment								
Less than high school	0.25	(0.24-0.26)	0.21	(0.20-0.22)	1.23	(1.15-1.33)	0.51	(0.45-0.59)
High school degree or GED	0.40	(0.39-0.41)	0.36	(0.35-0.38)	1.13	(1.06-1.21)	0.56	(0.51-0.63)
Some college or vocational	0.54	(0.52-0.55)	0.51	(0.50-0.53)	1.18	(1.11-1.26)	0.69	(0.62-0.77)
College degree	1.00	Reference	1.00	Reference	1.00	Reference	1.00	Reference
Couple's combined income								

Table 3.15 Multinomial Logistic Regression Analysis of Health Insurance Coverage for EMPLOYED WOMEN in Sensitivity Sample

0-34,999	0.20	(0.20-0.21)	0.39	(0.37-0.40)	2.61	(2.47-2.75)	0.62	(0.56-0.69)
35,000-49,999	0.47	(0.46-0.49)	0.62	(0.59-0.64)	1.47	(1.38-1.56)	0.78	(0.70-0.87)
50,000-74,999	1.00	Reference	1.00	Reference	1.00	Reference	1.00	Reference
75,000-99,999	1.94	(1.87-2.00)	1.49	(1.42-1.55)	0.77	(0.7-0.84)	1.44	(1.27-1.63)
100,000-149,999	2.94	(2.83-3.06)	2.03	(1.94-2.14)	0.66	(0.59-0.75)	1.81	(1.59-2.07)
>150,000	3.66	(3.46-3.87)	3.31	(3.10-3.52)	0.67	(0.56-0.8)	1.90	(1.61-2.24)
Part-time employment	0.48	(0.48-0.49)	1.24	(1.20-1.27)	1.25	(1.20-1.29)	1.42	(1.32-1.53)
Children under 18 years in household	1.14	(1.11-1.17)	1.03	(0.99-1.06)	3.34	(3.19-3.51)	0.85	(0.77-0.94)
Citizenship								
Citizen	1.00	Reference	1.00	Reference	1.00	Reference	1.00	Reference
Naturalized	0.64	(0.62-0.67)	0.98	(0.93-1.04)	0.88	(0.82-0.94)	0.72	(0.61-0.85)
Non-citizen	0.28	(0.27-0.29)	0.45	(0.43-0.48)	0.42	(0.39-0.44)	0.38	(0.32-0.46)
Disabled	0.82	(0.79-0.86)	0.60	(0.56-0.65)	2.02	(1.87-2.18)	6.58	(6.01-7.20)
MSA residence	1.24	(1.21-1.27)	1.02	(0.99-1.05)	1.01	(0.96-1.06)	1.11	(1.01-1.22)
Year								
2008	1.00	Reference	1.00	Reference	1.00	Reference	1.00	Reference
2009	0.99	(0.97-1.01)	0.97	(0.94-1.00)	1.04	(0.99-1.09)	0.83	(0.77-0.91)
2010	0.95	(0.93-0.97)	0.92	(0.9-0.95)	1.13	(1.08-1.18)	0.82	(0.75-0.89)

Note: RRR = Relative risk ratio. CI = confidence interval. MSA = Metropolitan Statistical Area. Model contains full set of covariates listed and state fixed effects. Coefficients for state covariates are not listed due to the large number of coefficients and lack of specific relevance; the full model results are available on request.

Table 3.16 Unadjusted and Adjusted Differences in ESI Between Men in Cohabiting Same-Sex Couples and Men in Married Cohabiting Opposite-Sex Couples, Restricted to Sensitivity Sample

	Unadjusted RD (95% CI) in percentage points		Adjusted RD (95% CI) in percentage points	
Northeast	**-3.2**	**(-5.1,-1.3)*****	**-9.1**	**(-11.1,-7)*****
Connecticut	-0.1	(-7.7,7.4)	-2.2	(-12.8,8.5)
Maine	-6.4	(-19,6.3)	-15.9	(-28.2,-3.6)**
Massachusetts	-4.4	(-8.8,0)*	-9.5	(-15.8,-3.1)***
New Hampshire†	-10.3	(-23,2.5)	-6.5	(-17.3,4.4)
New Jersey	-2.8	(-7.2,1.7)	-9.5	(-13.9,-5.2)***
New York	0.4	(-2.6,3.3)	-7.6	(-10.7,-4.5)***
Pennsylvania	-5.1	(-10.1,-0.1)*	-9.9	(-15,-4.7)***
Rhode Island	-11.5	(-25.2,2.2)	-19.0	(-27.7,-10.3)***
Vermont†	-18.8	(-35.4,-2.2)**	-16.4	(-28.7,-4)**
Midwest	**-6.6**	**(-8.9,-4.3)*****	**-10.4**	**(-12.5,-8.3)*****
Illinois	-3.1	(-7.1,0.9)	-10.1	(-14.1,-6.1)***
Indiana	-9.1	(-16.4,-1.7)**	-13.2	(-20.1,-6.35)***
Iowa†	-8.9	(-23.7,5.8)	-10.4	(-18.4,-2.4)**
Kansas	-9.4	(-27,8.2)	-13.1	(-23.2,-3.1)**
Michigan	-1.7	(-7.1,3.8)	-8.1	(-13,-3.3)***
Minnesota	-9.6	(-17.4,-1.8)**	-10.8	(-17.8,-3.8)***
Missouri	-7.0	(-15.2,1.2)	-8.5	(-16.2,-0.8)**
Nebraska†	-17.6	(-43.5,8.2)	0.4	(-16.8,17.7)
North Dakota†	-4.8	(-36.7,27.1)	-1.4	(-26.6,23.9)
Ohio	-5.7	(-10.4,-1)**	-9.4	(-14.3,-4.4)***
South Dakota†	-0.4	(-30.8,30.1)	-11.6	(-34.5,11.3)

Table 3.16 Unadjusted and Adjusted Differences in ESI Between Men in Cohabiting Same-Sex Couples and Men in Married Cohabiting Opposite-Sex Couples, Restricted to Sensitivity Sample

Wisconsin	-15.6	(-24.7,-6.5)***	-17.5	(-25.9,-9)***
South	**-4.5**	**(-6.0,-3)*** **	**-10.2**	**(-11.6,-8.8)*** **
Alabama	-10.3	(-22.4,1.8)	-10.5	(-20.2,-0.7)**
Arkansas	6.1	(-4.3,16.5)	4.9	(-3.3,13.1)
Delaware	-10.8	(-22.3,0.8)	-20.8	(-33.2,-8.4)***
District of Columbia	-1.7	(-6.8,3.4)	-7.7	(-13.1,-2.2)*
Florida	-4.7	(-7.9,-1.5)***	-10.3	(-13,-7.6)***
Georgia	-4.3	(-8.7,0.0)*	-10.5	(-14.8,-6.2)***
Kentucky	-7.0	(-15.1,1.2)	-14.1	(-23.2,-5)***
Louisiana	-12.0	(-20.9,-3.1)**	-15.8	(-22.8,-8.7)***
Maryland	-8.7	(-15.9,-1.6)**	-11.0	(-18.2,-3.8)***
Mississippi†	-13.8	(-26.6,-1)*	-11.4	(-25.3,2.5)
North Carolina	-1.4	(-6.9,4.1)	-3.0	(-7.2,1.3)
Oklahoma	-8.2	(-19.9,3.5)	-8.9	(-19.3,1.4)
South Carolina	-15.8	(-24.6,-7)***	-12.1	(-21.5,-2.7)**
Tennessee	-5.2	(-11.4,0.9)	-14.6	(-20.8,-8.5)***
Texas	1.2	(-2.2,4.7)	-9.6	(-12.7,-6.5)***
Virginia	-8.7	(-15.5,-1.9)**	-8.7	(-13.7,-3.8)***
West Virginia†	-12.0	(-30,6.1)	-25.8	(-43.5,-8.2)***
West	**0.1**	**(-1.6,1.7)**	**-9.8**	**(-11.4,-8.1)*** **
Alaska†	6.5	(-6.4,19.5)	2.3	(-12.3,16.9)
Arizona	-6.1	(-12.3,0.1)*	-12.3	(-18.4,-6.3)***
California	3.3	(1.2,5.4)***	-9.5	(-11.7,-7.4)***
Colorado	0.2	(-6.3,6.8)	-6.5	(-13.2,0.3)*

Table 3.16 Unadjusted and Adjusted Differences in ESI Between Men in Cohabiting Same-Sex Couples and Men in Married Cohabiting Opposite-Sex Couples, Restricted to Sensitivity Sample

Hawaii	-16.9	(-32.5,-1.3)**	-24.6	(-41.8,-7.5)***
Idaho†	10.6	(-6.7,27.8)	-7.4	(-23.7,8.9)
Montana†	-4.7	(-37,27.5)	9.8	(-11.7,31.4)
Nevada	-8.5	(-16.6,-0.4)*	-17.3	(-24.5,-10)***
New Mexico	-16.1	(-27.4,-4.8)**	-20.7	(-32.2,-9.3)***
Oregon	-0.9	(-7.3,5.6)	-6.5	(-13.1,0.1)*
Utah	3.9	(-4.9,12.6)	-1.9	(-10.9,7.1)
Washington	-0.2	(-5.9,5.5)	-7.5	(-13.1,-2)**
Wyoming†	-56.0	(-78.5,-33.5)***	-42.1	(-70.4,-13.9)***
United States	-4.5	(-5.6,-3.5)***	-9.9	(-10.8,-9)***

Note: RD = Rate difference. CI = Confidence interval. Adjusted models include a control for age group, income group, educational attainment, employment status, citizenship status, disability status, the presence of related children under 18 years living in the household, residence in a Metropolitan Statistical Area (MSA) and survey year.

† Indicates sample size fewer than 50 adults in a same-sex relationship, and results may not be reliable.

*P<.10; **P<.05; ***P<.01

Table 3.17 Unadjusted and Adjusted Differences in ESI Between Women in Cohabiting Same-Sex Couples and Women in Married Cohabiting Opposite-Sex Couples, Restricted to Sensitivity Sample

	Unadjusted RD (95% CI) in percentage points		Adjusted RD (95% CI) in percentage points	
Northeast	**-1.6**	**(-3.5,0.3)**	**-10.3**	**(-12.5,-8.2)*****
Connecticut	-5.2	(-12.6,2.2)	-11.5	(-24.4,1.4)*
Maine	-7.4	(-18.3,3.6)	-13.6	(-25.4,-1.7)**
Massachusetts	-2.5	(-5.8,0.8)	-10.5	(-15,-5.9)***
New Hampshire	3.2	(-3.5,9.9)	0.7	(-6.8,8.2)
New Jersey	-2.0	(-7.5,3.4)	-11.4	(-17,-5.8)***
New York	1.1	(-2.2,4.4)	-9.8	(-13.4,-6.2)***
Pennsylvania	-3.7	(-9.2,1.8)	-9.4	(-14.2,-4.5)***
Rhode Island	-3.5	(-13.6,6.6)	-10.6	(-21.9,0.7)*
Vermont	-6.8	(-19.9,6.4)	-24.2	(-36.6,-11.7)***
Midwest	**-9.3**	**(-11.6,-7.1)*****	**-13.1**	**(-15.1,-11.1)*****
Illinois	-10.4	(-15.8,-5.1)***	-15.0	(-19.1,-10.8)***
Indiana	-10.5	(-16.9,-4.1)***	-11.5	(-16.9,-6.1)***
Iowa	-2.4	(-13.4,8.5)	-17.3	(-28.4,-6.1)***
Kansas	1.2	(-6.4,8.8)	-8.8	(-16.3,-1.2)**
Michigan	-16.0	(-22.9,-9.1)***	-15.5	(-21.7,-9.3)***
Minnesota	-2.5	(-9.7,4.7)	-6.8	(-13.8,0.1)*
Missouri	-13.2	(-21.1,-5.2)***	-15.1	(-21.9,-8.3)***
Nebraska	-11.4	(-24.4,1.7)	-17.9	(-34.4,-1.4)**
North Dakota†	-11.8	(-36,12.4)	-5.1	(-17.9,7.8)
Ohio	-8.6	(-12.9,-4.3)***	-12.5	(-16.9,-8.1)***
South Dakota†	17.0	(5.5,28.4)**	16.9	(4.1,29.7)**
Wisconsin	-7.6	(-14.8,-0.4)*	-14.1	(-20.1,-8.1)***

Table 3.17 Unadjusted and Adjusted Differences in ESI Between Women in Cohabiting Same-Sex Couples and Women in Married Cohabiting Opposite-Sex Couples, Restricted to Sensitivity Sample

South	**-2.1**	**(-3.6,-0.5)****	**-9.6**	**(-11.2,-8.1)*****
Alabama	-15.4	(-25.5,-5.2)***	-15.7	(-24.1,-7.3)***
Arkansas	-6.4	(-18.7,5.9)	-5.6	(-20.3,9)
Delaware	4.0	(-6.3,14.3)	0.1	(-13.4,13.7)
District of Columbia	-1.7	(-10.4,7.1)	-15.7	(-24.1,-7.2)***
Florida	0.3	(-3.0,3.6)	-8.8	(-12.2,-5.5)***
Georgia	-3.7	(-8.5,1.2)	-13.3	(-18.2,-8.3)***
Kentucky	-3.0	(-11.2,5.1)	-0.9	(-9.1,7.3)
Louisiana	-9.2	(-18.6,0.3)*	-13.9	(-23.2,-4.6)***
Maryland	2.8	(-1.4,6.9)	-5.0	(-9.9,0)*
Mississippi†	-5.6	(-18.1,7)	-17.6	(-32.6,-2.6)**
North Carolina	-2.8	(-7.9,2.3)	-10.0	(-15.5,-4.5)***
Oklahoma	-0.9	(-9.8,8)	-4.3	(-11.3,2.7)
South Carolina	-7.6	(-16.8,1.6)	-10.8	(-18.9,-2.8)**
Tennessee	-9.3	(-16.1,-2.5)**	-13.1	(-19.1,-7.1)***
Texas	1.7	(-1.6,5)	-10.2	(-13.4,-7)***
Virginia	-1.6	(-6.6,3.4)	-6.1	(-11.5,-0.8)**
West Virginia†	-2.5	(-18.9,14)	-5.1	(-18.6,8.4)
West	**3.1**	**(1.5,4.8)*****	**-8.1**	**(-10,-6.3)*****
Alaska†	0.5	(-12.4,13.4)	-2.0	(-16.6,12.6)
Arizona	-1.2	(-7.3,4.9)	-10.2	(-16.4,-4)***
California	8.9	(6.8,11)***	-4.8	(-7.4,-2.1)***
Colorado	-3.6	(-9.5,2.3)	-12.6	(-18.4,-6.8)***
Hawaii†	-12.2	(-26.9,2.6)	-16.5	(-37,4.1)
Idaho†	0.7	(-10,11.4)	0.0	(-11.1,11.1)
Montana†	10.0	(-1.0,20.9)	-6.4	(-26.4,13.6)

Table 3.17 Unadjusted and Adjusted Differences in ESI Between Women in Cohabiting Same-Sex Couples and Women in Married Cohabiting Opposite-Sex Couples, Restricted to Sensitivity Sample

Nevada	-5.7	(-17.4,6.1)	-11.5	(-21.9,-1.2)**
New Mexico	-6.7	(-16.0,2.7)	-14.9	(-22.7,-7.2)***
Oregon	0.6	(-5.5,6.7)	-4.6	(-10.9,1.8)
Utah	-2.7	(-14.4,9.1)	-14.7	(-26.4,-3)**
Washington	-2.0	(-6.9,3)	-10.9	(-16,-5.7)***
Wyoming†	-2.2	(-25.7,21.2)	-28.5	(-44.8,-12.1)***
United States	-2.7	(-3.7, -1.6)***	-10.1	(-11,-9.2)***

Note: RD = Rate difference. CI = Confidence interval. Adjusted models include a control for age group, income group, educational attainment, employment status, citizenship status, disability status, the presence of related children under 18 years living in the household, residence in a Metropolitan Statistical Area (MSA) and survey year.

† Indicates sample size fewer than 50 adults in a same-sex relationship, and results may not be reliable.

*P<.10; **P<.05; ***P<.01

Table 3.18 Differences in ESI Coverage for Same-Sex Couples by State Marriage Policy

	Unadjusted RD (95% CI) in percentage points		Adjusted RD (95% CI) in percentage points	
Men				
Same-sex marriage	0.0	(-2.2,2.2)	-9.1	(-11.05,-7.09)***
Civil unions or broad domestic partnerships	0.3	(-2.1,2.7)	-8.9	(-11.12,-6.71)***
Same-sex marriage bans or no provisions	-4.7	(-5.7,-3.6)***	-9.9	(-10.84,-8.99)***
Women				
Same-sex marriage	6.2	(4.2,8.2)***	-7.5	(-9.75,-5.2)***
Civil unions or broad domestic partnerships	2.3	(-0.2,4.9)	-6.3	(-8.99,-3.69)***
Same-sex marriage bans or no provisions	-4.1	(-5.1,-3.0)***	-10.7	(-11.68,-9.76)***

Note: RD = Rate difference. CI = Confidence interval. Adjusted models include a control for age group, income group, educational attainment, employment status, citizenship status, disability status, the presence of related children under 18 years living in the household, residence in a Metropolitan Statistical Area (MSA), state and survey year.
*P<.10; **P<.05; ***P<.01

4. The Association Between State Policy Environments and Health Insurance Coverage For Children of Cohabiting Same-Sex Parents

4.1 Introduction

This chapter[15] examines the association between state policy environments and health insurance coverage for children of cohabiting same-sex couples. This chapter makes two contributions to the dissertation. First, this is the first study to examine health insurance coverage among children of cohabiting same-sex couples using federal surveys. One previous study uses a similar method to study academic achievement among children with same-sex parents in the Early Childhood Longitudinal Study—Kindergarten (ECLS-K) and found children with same-sex parents scored lower than their peers with married opposite-sex parents on math exams, but these differences diminished after controlling for demographic characteristics and family structure transitions (Potter 2012). Other studies have either enumerated the number of children in same-sex households (Krivickas & Lofquist 2011; Gates 2013); used the presence of children in same-sex households to predict the likelihood of being a cohabiting same-sex couple in Census data (Black et. al, 2000); used a convenience sample from a Boston health center to study access to health care among children in LGBT families (Perrin &

[15] A version of this paper was published as Gonzales, G. and L.A. Blewett. 2013. "Disparities in Health Insurance Among Children With Same-Sex Parents." *Pediatrics* 132(4):703-711. This modified version was reproduced with permission by the American Academy of Pediatrics. This chapter differs from the paper in *Pediatrics* in the following ways: this chapter includes the introduction (section 4.1) required in the dissertation, adds metropolitan statistical area (MSA) to the statistical analysis, extends the discussion on the data and analytic limitations, clarifies that the sample includes children with cohabiting parents, presents findings in terms of relative risk ratios, and presents complete regression results and sensitivity analyses in the technical appendix.

Kulkin 1996); or only focused on developmental and psychosocial outcomes among children with LGBT parents (Patterson 2006).

Using data from the American Community Survey (ACS), this study finds that children with cohabiting same-sex parents are less likely to have private health insurance compared to their peers with married cohabiting opposite-sex parents. However, these disparities in private health insurance are narrower when children with dual mothers live in states that have implemented same-sex marriage, civil unions or domestic partnerships.

Second, this study contributes to the conceptual framework in chapter 1, by suggesting that public policies have indirect effects on populations not directly targeted. For instance, same-sex marriage is an evolving state policy (in Figure 1.1) aimed directly at lesbian, gay, bisexual and transgender (LGBT) adults wanting to enter unions, but marriage also affects the health and well-being of all members in the family, including children of cohabiting same-sex couples who may choose to get married. While policy debates surrounding same-sex marriage may frame the legalization of same-sex marriage as harmful for children, this study suggests that the benefits accompanying same-sex marriage are extended to children in same-sex households.

Additionally, this study examines another related policy affecting same-sex households: second-parent adoption laws, which allow two adults of the same-sex to legally adopt the same child. At the time of this writing, not all states with same-sex marriage policies also allowed second-parent adoptions, and not all states with second-parent adoptions allowed same-sex couples to marry (but these scenarios are increasingly being challenged in federal and state courts following the enactment of same-sex marriage across the country in 2015). In the milieu of alternative polices available to the

states, some policy options may be more acceptable by the public compared to other policies. For example, while a minority (39%) of Americans polled in national public opinion surveys between 1999 and 2008 supported legalizing same-sex marriage, a majority of Americans supported laws that would prohibit discrimination against LGBT populations in housing (75%), hate crimes (70%) and employment (62%) [Lax & Phillips 2009]. Approximately 43% of Americans in these surveys also endorsed second-parent adoption laws for same-sex couples, which was greater than the support for same-sex marriage (39%) but less than the support for civil unions (49%) [Lax & Phillips 2009]. Therefore, the key policy contribution towards the conceptual framework in chapter 1 is that state policies depend on the political climate and the policy alternatives available. While same-sex marriage may not be a viable option in one state, the state may still pursue alternative policy options that would extend legal protections to some same-sex households while placing same-sex marriage on hold in the state or while waiting for the federal government to act.

The ability to make causal inferences and extrapolations from this chapter is bounded by the threats to internal and external validity in this study. First, there are instrumentation issues with measuring cohabiting same-sex couples and their children in the ACS. Although uncommon, a small number of opposite-sex couples misreporting sex can inundate and contaminate the sample of cohabiting same-sex couples. The technical appendix to this chapter addresses these issues. Another instrumentation issue includes the measurement of children with same-sex parents. This study does not include children with single parents, children whose same-sex parents are not living together or not in the relationship with the primary householder, and children unrelated to the primary

householder. Selection and omitted variable bias also present threats to internal validity in this study. Cohabiting same-sex couples (in a relationship with the primary householder) measured in the ACS and disclosing their relationships in federal surveys are systematically different from same-sex couples missing in the ACS or not disclosing their relationships. These differences may overstate disparities in ESI for same-sex couples and their children. This study may also be missing observed and unobserved omitted variables important for this analysis, including whether a parent or their partner was eligible for and offered ESI (this study does control for parental work status).

In terms of external validity, the reader is reminded to not extrapolate the results from this study to other health outcomes, including access to care measures, health services utilization and out-of-pocket medical spending. Findings from this chapter may also not be generalizable to other settings and states, as the state policy environments in this study represent early adopters of same-sex marriage and second-parent adoptions under the federal Defense of Marriage Act (DOMA), which did not recognize married same-sex couples at the federal level. This discriminatory portion of DOMA was repealed in 2013, and same-sex couples are now eligible for legal and federal recognition across the country.

4.2 Background

A growing number of children are living with cohabiting same-sex couples and being raised by gay and lesbian parents. Data from the American Community Survey indicate that there are approximately 125,000 same-sex couples raising 220,000 children in the United States (though these estimates do not incorporate children with single gay or lesbian parents or families not disclosing their same-sex relationship status) [Lofquist

et al. 2012; Gates 2013]. As a result, pediatricians and children's health care providers should expect to encounter more children from gay and lesbian families in their practices.

4.3 Literature Review

Although disparities in health and health care are well-documented for gay and lesbian adults (Institute of Medicine 2011; Heck *et al.* 2006; Ash & Badgett 2006; Buchmueller & Carpenter 2010; Ponce *et al.* 2010; Clift & Kirby 2012), very little is known about the children living within their households. The large number of studies that do investigate the health and well-being of children with same-sex parents disproportionately focus on the psychological and social development of children (Patterson 1992; Lambert 2005; Patterson 2006; Patterson 2009; Biblarz & Savci 2010). Yet, gay and lesbian families face legal obstacles that directly impact the health of their children, particularly improvements in health associated with health insurance (Currie & Gruber 1996; Levy & Meltzer 2008).

More than half (55%) of the United States population receives health insurance through their own or a family member's employer-sponsored health plan (Janicki 2013; DeNavas-Walt, Proctor & Smith 2012), but children with gay and lesbian parents can face barriers to gaining coverage through a parent's private health plan. First, not all employers extend health benefits to same-sex partners of employees and their children like they do for married heterosexual couples. Approximately 30% of all employers offering health benefits have extended health insurance to same-sex partners and their children as of 2012 (Claxton *et al*. 2012; Bureau of Labor Statistics 2011). Employers offering health insurance to employees and their dependents often set provisions requiring qualified children be related to the employee by birth, by legal marriage or by

legal adoption so that health insurance is exempted from federal taxes under standards determined by the Internal Revenue Service (Internal Revenue Service 2010).

Meanwhile, not all states afford children with same-sex parents the opportunity to be legally related to both parents through legal marriage or legal adoption. At the time of this writing, thirteen states and the District of Columbia recognized legal marriages for same-sex couples, and an additional six states recognized civil unions or comprehensive domestic partnerships that include full spousal and family rights to same-sex couples (Figure 4.1) [National Conference of State Legislatures 2013]. When states adopt these provisions, employers that are "fully-insured" and regulated by state insurance laws, are oftentimes required to extend health benefits to the dependents of gay and lesbian employees (Badgett 2010). Additionally, not all states allow adoption by same-sex parents. Eighteen states allowed "second-parent" adoptions statewide, at the time of this writing, which permitted both parents of a gay or lesbian couple the ability to be legally adoptive parents (Figure 4.1) [Human Rights Campaign 2013]. State policies like same-sex marriage and second-parent adoptions secure the child's eligibility for private health insurance from both parents.

To the best of my knowledge, researchers know next to nothing on the health insurance coverage patterns and the disparities that are likely to exist among children living in same-sex households. This paper examines the distribution of health insurance coverage for children with cohabiting same-sex parents compared to their counterparts living with cohabiting opposite-sex parents and investigates how state policies, namely same-sex marriage, civil unions, domestic partnerships and second-parent adoption affect the distribution of health insurance coverage.

4.4 Methods

4.4.1 Data Source

This study analyzed data from the 2008-2010 American Community Survey (ACS) three-year public use microdata sample (PUMS) [U.S. Census Bureau 2011]. The ACS is a general household survey conducted by the U.S. Census Bureau and is designed to provide states and communities with timely demographic, social, economic, and housing information. The ACS maintains an annual sample size of about 3 million housing units and a monthly sample size of about 250,000 households. The large samples provided by the ACS make it a powerful resource for studying relatively small subpopulations, like same-sex households (Lofquist 2011).

Like most federal surveys, the ACS does not ascertain sexual orientation. Instead, cohabiting same-sex couples and their children were identified based on the relationship to the primary respondent. Adults in cohabiting same-sex couples were identified when the primary respondent identified another person of the same sex as a husband, wife, or unmarried partner. Same-sex couples using the husband or wife response categories were reassigned as unmarried partners in the public use files by the Census Bureau regardless of the legal status of their marriage (O'Connell and Gooding 2012). Meanwhile, the instruction guide accompanying the survey defined an unmarried partner "as a domestic partner" or "a person who shares a close and personal relationship with the reference person" (U.S. Census Bureau 2009). Consistent with previous research using similar techniques to identify cohabiting same-sex couples, the present study assumes that these couples are lesbian, gay or bisexual adults (Heck *et al.* 2006; Ash & Badgett 2006; Buchmueller & Carpenter 2010; Gates 2010). This identification strategy cannot

ascertain transgender populations given the binary male-female categories on gender identify included in the survey.

The subjects of this analysis were children aged 0 to 17 years related to the primary respondent as a biological child, adopted child or stepchild.[16] The final sample sizes included 1,369,789 children in married opposite-sex households; 101,678 children in unmarried opposite-sex households; 1,649 children in dual father same-sex households; and 3,432 children in dual mother same-sex households. This study separated same-sex households by those headed by two men versus those headed by two women to determine whether state-level policies affect gay and lesbian households differently as has been detected in prior research (Buchmueller & Carpenter 2012). We do not include children in single parent households because they do not share similar economic experiences as two-parent households (Manning & Lamb 2003). Furthermore, the strategy for identifying same-sex households using relationship information cannot differentiate children in single parent households headed by gay or lesbian parents.

4.4.2 Primary Outcome

A question regarding health insurance was added to the ACS in 2008 and requires the respondent to report current type of health insurance coverage for all members of the household (Davern *et al.* 2009). This study assigned each child into one of three insurance categories: (1) private coverage, (2) public coverage, or (3) uninsured. Children were assigned private health insurance if the respondent indicated that the child was covered by employer-sponsored insurance, TRICARE or other military health care, or

[16] This study does not include foster children or unrelated children, since most employers do not cover foster and unrelated children, and virtually all foster children are categorically eligible for Medicaid (Allen & Hendricks 2013).

insurance purchased directly from an insurance company.[17] Children covered by public health insurance had insurance through Medicare, Medicaid or the Children's Health Insurance Program. Children were assigned uninsured if the respondent reported no type of insurance coverage or coverage through the Indian Health Service (U.S. Census Bureau 2013).[18]

4.4.3 Independent Variables

The primary independent variable of interest was the type of family each child belonged to: married and cohabiting opposite-sex parents, unmarried and cohabiting opposite-sex parents, cohabiting dual father parents, or cohabiting dual mother parents. Children were also grouped into variables previously found to be associated with children's health insurance coverage (Aday & Andersen 1974; Blewett, Davern & Rodin 2004). Child demographic variables included age group in years (<1, 1-5, and 6-17 years), race and ethnicity (non-Hispanic white, Hispanic, non-Hispanic black, non-Hispanic Asian, and non-Hispanic multiple or other races), sex, citizenship status (citizen, naturalized, and non-citizen), disability status (reporting at least one of six disability types: deaf or having serious difficulty hearing; blind or having serious

[17] If multiple sources of coverage were reported for an observation, a single primary source of health insurance is assigned in the following order to minimize overestimation in the individual insurance market (Abraham, Karaca-Mandic, & Boudreaux 2013; Mach & O'Hara 2011): (1) Medicare; (2) employer-sponsored insurance (ESI), military health care, or VA; (3) Medicaid, Medical Assistance, or any kind of government-assistance plan for those with low incomes or a disability; and (4) insurance purchased directly from an insurance company. TRICARE and military health care is considered as private health insurance since eligibility is determined by military employment.

[18] The U.S. Census Bureau does not consider enrollment in the Indian Health Service (IHS) as comprehensive health insurance. The IHS is an agency in the Department of Health and Human Services that provides federal health services to American Indians and Alaska Natives in IHS facilities.

difficulty seeing; physical, mental or emotional problems; serious difficulty walking or climbing stairs; difficulty bathing or dressing; and because of a physical, mental, or emotional problem, having difficulty doing errands) and relationship to reference parent (biological, adopted and step-son or daughter). Household variables included the age group of the reference parent in years (15-24, 25-34, 35-44, 45-54, 55-64, and 65+ years), combined parents' income (<100%, 100 to <200%, 200 to <400%, and ≥400% of the federal poverty guidelines [FPG] for the corresponding year), work status of parents (any adult working full-time, only part-time, all unemployed, and all not in labor force), highest parental educational attainment (less than high school, high school, some college, and college), total number of children in household (two or less, three or more), and primary language spoken at home (English, not English).

4.4.4 Analyses

Descriptive statistics, including health insurance coverage, were estimated for children by family type. Pearson χ^2 statistics were used to compare descriptive characteristics of children across family types. A multinomial logistic regression model was then used to assess the association between family type and type of health insurance while controlling for demographic and household characteristics. We report the relative risk ratios (RRRs) for the regression model which included all independent variables discussed in the previous section in addition to state and year fixed effects.

This study also tested whether state policies modified disparities in health insurance coverage by stratifying children based on the presence of same-sex marriage, civil unions or comprehensive domestic partnerships with spousal rights (California, District of Columbia, Massachusetts, New Jersey, and Vermont) and second-parent

adoptions (California, Colorado, Connecticut, District of Columbia, Illinois, Indiana, Massachusetts, New Jersey, New York, Pennsylvania, and Vermont) in each child's state as of January 1, 2008 (National Conference of State Legislatures 2013; National Gay and Lesbian Task Force, 2013). This analysis estimated the RRRs by each state policy group to determine whether state policies qualitatively modified the relationship between a child's family type and type of insurance coverage. All regression models were estimated in Stata 12 using *mlogit* and *svy* commands with sampling weights (StataCorp 2011). This study was exempt from approval by the Institutional Review Board because the data were obtained from secondary sources. See the technical appendix in section 4.8 for a detailed discussion of the methods used in this study, sensitivity analyses and complete regression tables.

4.5 Results

Children in married (cohabiting) opposite-sex households were more likely to have private insurance (77.5%; Table 4.1) compared to children in same-sex households with cohabiting dual-fathers (63.3%) and cohabiting dual-mothers (67.5%). Notably, children in unmarried (cohabiting) opposite-sex households were much less likely to have private insurance (37.7%), but their public insurance coverage (51.1%) exceeded any other group. Children of cohabiting same-sex couples were also more likely to be adopted, which may affect their access to private health insurance when employers require adopted children be done so legally. Nearly 13% and 16% of the children in dual father and dual mother households, respectively, were adopted by the primary respondent. Fewer than 3% of the children in married and unmarried opposite-sex households were adopted by the primary respondent.

Results from the multinomial logistic regression model on the entire sample indicated significant differences in private health insurance coverage across family types (Table 4.2). After adjusting for demographic and household characteristics, children with cohabiting dual fathers (RRR = 0.55; 95% CI = 0.39-0.78) or cohabiting dual mothers (RRR = 0.60; 95% CI = 0.47- 0.78) were significantly less likely to have private insurance compared to children with married, cohabiting opposite-sex parents. Children with unmarried and cohabiting opposite-sex parents were much less likely to have private insurance (RRR =0.46; 95% CI = 0.44-0.48), but they were significantly more likely to be covered by public insurance (RRR = 1.42; 95% CI = 1.36-1.48). A similar relationship with public health insurance was not found for children with cohabiting same-sex parents. Although not the primary focus of this study, the additional independent variables predicted patterns and associations with type of health insurance in expected directions.

The final models examined the association between family type and health insurance coverage based on state polices that were available to gay and lesbian families prior to the first survey year. No statistical difference was detected for private insurance coverage between children with cohabiting dual mothers (RRR = 0.83; 95% CI = 0.48-1.41) and children with married and cohabiting opposite-sex parents living in states with same-sex marriage, civil unions or comprehensive domestic partnership laws (Table 4.3). Differences in private health insurance coverage remained statistically significant for children with cohabiting dual fathers (RRR = 0.43; 95% CI = 0.20-0.94). When same-sex marriage, civil unions or domestic partnership laws were absent in the state prior to being surveyed, children with either cohabiting dual fathers (RRR = 0.61; 95% CI = 0.41-0.92)

or cohabiting dual mothers (RRR = 0.59; 95% CI = 0.44-0.78) experienced statistically lower rates of private health insurance coverage. The rates of having public health insurance were similar for children with cohabiting same-sex parents and married cohabiting opposite-sex parents across states with and without same-sex marriage policies. Differences in private and public health insurance coverage remained directionally and statistically similar across state policies for children with unmarried cohabiting opposite-sex parents.

Differences in private health insurance also diminished for children with cohabiting same-sex parents when these families lived in states that allowed second-parent adoptions (Table 4.4). Children with dual fathers (RRR = 0.70; 95% CI = 0.40-1.22) were less likely to have private coverage than children with married opposite-sex parents, but differences were not statistically significant. Children with cohabiting dual mothers (RRR = 0.66; 95% CI = 0.41-1.05) were less likely to have private health insurance. Meanwhile, significant differences in private health insurance coverage remained for (1) children with cohabiting same-sex parents where second-parent adoptions were not available statewide and (2) children with unmarried cohabiting opposite-sex parents (Table 4.4).

4.6 Discussion

To the best of available knowledge, there is very little research on the health and the provision of health care for children with gay and lesbian parents. One qualitative study conducted over fifteen years ago found that gay and lesbian parents in Boston were able to obtain pediatric care that was affirming, supportive, and satisfactory (Perrin & Kulkin 1996). Rather, most studies on children with same-sex parents have

disproportionately focused on their psychological and social development (Patterson 1992; Lambert 2005; Patterson 2006; Patterson 2009; Biblarz & Savci 2010). While previous studies have examined childhood disparities in health insurance on the basis of race and ethnicity (Shone *et al*. 2005; Flores & Olson 2005), socioeconomic status (Newacheck *et al.* 1999; Fairbrother *et al.* 2010), and immigration status (Guendelman, Schuffler & Pearl 2001; Acevedo-Garcia & Stone 2008), this study is the first to evaluate health insurance coverage and disparities for children with cohabiting same-sex parents.

This study found that children with cohabiting same-sex parents were less likely to have private health insurance than their peers with married opposite-sex parents. Disparities in private health insurance coverage diminished when children were living in states with legal same-sex marriage, civil unions or second-parent adoptions for gay and lesbian couples. State policies regarding same-sex marriage and second-parent adoptions did not affect differences in health insurance coverage for children with unmarried opposite-sex parents—probably because they were not affected by these provisions. Interestingly, this study did not find any differences in public health insurance coverage rates for children living with cohabiting same-sex parents compared to their counterparts with married cohabiting opposite-sex parents. Public programs such as Medicaid and the Children's Health Insurance Program assess children's eligibility for coverage based on household income rather than parental marital status.

Since 2002, the American Academy of Pediatrics (AAP) has endorsed legal adoption by same-sex parents, because "children deserve to know that their relationships with both of their parents are stable and legally recognized" (p 339) [Committee on Psychological Aspects of Child and Family Health 2002]. The policy statement and

accompanying technical brief (Perrin *et al*. 2002) suggested that legal adoption for same-sex parents would ensure a child's eligibility for health insurance coverage from both parents. This study adds early evidence in favor of the AAP's policy statement. Moreover, this study adds to the growing body of evidence on the health benefits associated with legal same-sex marriage (Hatzenbuehler et al. 2012; Wight, LeBlanc & Badgett 2012). Yet, potential gains in health that accompany same-sex marriage are often discussed in the context of gay and lesbian adult populations and have excluded the children raised by gay and lesbian parents and the health issues important to children and pediatricians (Heck *et al.* 2006; Ash & Badgett 2006; Buchmueller & Carpenter 2010; Buffie 2011).

In a 2006 analysis commissioned by the AAP Board of Directors (Pawelski *et al.* 2006), expanded access to employer-based health insurance was listed among the benefits that are conferred to children when their same-sex parents are allowed to marry. More recently, pediatricians and the AAP have endorsed marriage equality for same-sex couples (Garrett & Lantos 2013; Committee on Psychological Aspects of Child and Family Health 2013; Perrin *et al.* 2013). While the future of legal same-sex marriage and the benefits to health remain uncertain, this study suggests that children with cohabiting same-sex parents experienced increased access to private health insurance coverage when they lived in states that allowed their parents to marry—especially for children in cohabiting dual mother households. This finding is consistent with early evidence in California that found significant gains in health insurance coverage for lesbian couples rather than gay male couples following health insurance mandates for same-sex couples (Buchmueller & Carpenter 2012).

Studying children with cohabiting same-sex parents or with gay and lesbian parents remains challenging because of data limitations similar to the ones faced here. This study relied on a common strategy to identify cohabiting same-sex couples based on the intra-household relationship to the survey respondent and assuming that same-sex couples were gay, lesbian or bisexual (Heck *et al.* 2006; Ash & Badgett 2006; Buchmueller & Carpenter 2010). Missing from this analysis were same-sex couples outside of the relationship with the primary respondent or same-sex partners identified as unrelated adults rather than a husband, wife, or unmarried partner. Also missing were children of same-sex couples that were living outside of the household, children of same-sex couples whose parents were not residing together or children who were not reported as the biological, adopted or step-child of the primary respondent. There is some substantial concern that the sample of same-sex couples may include opposite-sex couples that have misreported sex (Gates & Steinberger 2009). The computer assisted telephone and personal interview (CATI/CAPI) versions of the ACS verified the sex of the husband, wife, and unmarried partner if it matched the primary respondent's sex. After restricting our sample to the same-sex couples confirming their sex in the CATI/CAPI versions of the ACS and the couples most likely not using the husband/wife designation based on marital status "allocation flags" in the ACS (as they are prone to error) [Gates & Steinberger 2009], RRRs were similar in direction and significance to the results presented here (see Tables 4.9-4.14 in the accompanying technical appendix).

This study would have benefited from knowing the legal status of the same-sex couple's relationship. Researchers cannot distinguish whether same-sex couples are legally married, are in a state-sanctioned civil union or domestic partnership, or are

unmarried cohabitating partners. The Census Bureau reassigns same-sex couples identified as husband or wife to unmarried partners without providing specific "assignment edit flags" in the public use files (Gates & Steinberger 2009; O'Connell & Gooding 2012). Making these edits or withholding edit flags in the public use files prevents researchers from examining differences between unmarried same-sex couples and married same-sex spouses. Notwithstanding the data limitations here, the ACS is a predominant resource for studying same-sex households and health insurance coverage (Lofquist 2011; Lofquist *et al.* 2012; Davern *et al.* 2009; U.S. Census Bureau 2013).

Other limitations to this study include selection bias and omitted variable bias. Cohabiting same-sex couples in the ACS (i.e. the primary householder and his or her partner) choosing to disclose their relationships and their families are systematically different from those that choose not to disclose their relationships or missing from the analysis (i.e. not cohabiting or not in a relationship with the primary householder). The cohabiting same-sex couples in this study display high levels of socioeconomic status, and leaving out same-sex couples not included in the ACS may overstate the association between same-sex marriage laws and disparities in ESI. Meanwhile, not controlling for observed or unobserved omitted variables in this analysis may also overstate the results. Future research should continue to explore the mechanisms for enrolling children in ESI plans using richer data sources or measures not included in this study.

Additionally, the association between state policy environments and disparities in ESI may not be generalizable to other settings or populations. For instance, the findings in this study may not be generalizable to other states, which depends in part on their political, economic and health insurance environments. Moreover, these results may not

be extrapolated to other populations, such as children with single lesbian, gay or bisexual (LGB) parents or children with same-sex parents not cohabiting together or cohabiting as secondary families in a household.

Finally, conducting health research on gay and lesbian families is difficult when data are not collected. A first step towards improving our knowledge on children with gay and lesbian parents is to include questions on sexual orientation in health surveys. Beginning in 2013, the National Health Interview Survey (NHIS) included for the first time a question on sexual orientation.[19] Pediatricians and children's health researchers should take advantage of this improved data collection to build our understanding of the unique health circumstances facing gay and lesbian families and their children. Specifically, the health research agenda should move beyond determining how parental sexual orientation affects childhood psychological and social outcomes and towards advancing issues in accessing appropriate health care and tracking health behaviors of children with same-sex parents.

4.7 Conclusion

Findings from this study indicate that children with cohabiting same-sex parents (and in a relationship to primary householder) face barriers to private health insurance that translate into significant disparities in insurance coverage. Disparities in private health insurance, however, can potentially be modified and even reduced when pediatricians and states support policies that promote the well-being of all children, including same-sex marriage and second-parent adoptions. Results highlighted in this

[19] Researchers interested in using newly collected data on sexual orientation, however, should take caution with new data resources, as these data are likely to suffer selection and instrumentation issues.

study provide supporting evidence in favor of recent policy statements by the American Academy of Pediatricians (AAP) endorsing same-sex marriage and second-parent adoptions.

The contributions this study makes in the dissertation are twofold. First, this is the first study to measures health insurance coverage and disparities in health insurance for children with cohabiting same-sex parents. Second, this paper suggests that same-sex marriage laws are associated with narrower disparities in ESI for children with cohabiting same-sex parents. Public policies, especially family policies that affect a target population can also provide benefits or burdens to all members in the family. The next chapter examines the causal impact of legalizing same-sex marriage in a large state, New York, on health insurance coverage rates for adults in cohabiting same-sex couples.

4.8 Technical Appendix

4.8.1 Data Sample

This study uses data from the 2008-2010 American Community Survey (ACS) to estimate disparities in health insurance coverage for children with cohabiting same-sex parents versus children with cohabiting opposite-sex parents. This technical appendix provides more information on the selection of the sample, the methods used and complete regression tables. First, this study restricts the original sample to (1) children between 0-17 years of age, (2) residing in housing units (not in group quarters), and (3) related to the primary reference person as a "biological son or daughter", "adopted son or daughter", or "stepson or stepdaughter." Children indicated as a "foster child" or "other nonrelative" are not included in this study, because most employers do not cover foster children or

unrelated and non-dependent individuals. Additionally, virtually all foster children are categorically eligible for Medicaid (Allen & Hendricks 2013). Missing from this analysis are also children related to the primary respondent but not residing in the home, children residing with a single parent, children living with a grandparent (and the grandparent is the primary reference person), and children whose same-sex parents may not be residing together. This study only includes data from 2008-2010, because health insurance was first added the ACS in 2008, and more recent data were not available at the time this study was first completed.

4.8.2 Methods

This study uses the following multinomial logistic regression to measure differences in health insurance status:

$$Y_i = \alpha + \beta_1 Family_i + \beta_k X_i + \varepsilon$$

where Y_i represents one of the two health insurance outcomes (private and public; uninsured was the reference category) for child *i*. $Family_i$ indicates the family type (cohabiting dual fathers, cohabiting dual mothers, unmarried and cohabiting opposite-sex parents; married and cohabiting opposite-sex parents were the reference category). The regression model also controls for the vector of covariates, X_i, which included the child's age group, the child's race and ethnicity, the child's sex, the child's citizenship status, the child's disability status, and the child's relationship to the reference person. Also included in the vector of covariates was the age group of the reference person, parent's combined income relative to the federal poverty guidelines (FPG), work status of the parents, highest education attainment of the parents, total number of children in the household, primary language spoken at home, residence in a Metropolitan Statistical

Area (MSA), state of residence and survey year. The control variables were selected based on their strong association with predicting health insurance status in the United States (Andersen 2008) and motivated by the synthesis of previous research measuring disparities in health insurance for children (Blewett, Davern & Rodin 2004).

The multinomial logistic regression was first estimated on all children and then stratified by state policy environment using Stata 12 and survey weights with the *svy* and *subpop* commands. Because children in the same household are likely to share similar characteristics, their health insurance outcomes may be correlated. To address this correlation, all standard errors were clustered at the household level. Results from the multinomial logistic regression models are presented here using relative risk ratios (RRRs) which are sometimes reported as odds ratios to mimic the interpretation in logistic regression models (StataCorp 2011; Stata Consulting Group 2015). The abbreviated results by state policy environment from the multinomial logistic regression models are presented in Tables 4.3-4.4, and the complete regression coefficients are presented in Tables 4.5-4.8.

4.8.3 Sensitivity Analysis

There is some concern about the accuracy to which cohabiting same-sex couples in the American Community Survey (ACS) are truly same-sex couples (a more detailed discussion of this issue is included in the technical appendix to chapter 4). Although an uncommon error, some married opposite-sex couples may mismark the sex of one spouse, which can inundate the relatively small sample of same-sex couples. The computer assisted telephone and personal interview (CATI/CAPI) versions of the ACS verify the sex of the husband or wife if it matches the primary respondent's sex.

Following the guidance of Gates and Steinberger's (2009) recommendations for minimizing contamination of opposite-sex couples mismarking sex in the ACS, this study restricts the sample to same-sex couples confirming their sex in the CATI/CAPI versions of the ACS and the couples not using the "husband/wife" designation based on marital status "allocation flags" in the ACS (as they are prone to error). After making these adjustments in sensitivity tests, RRRs were similar in direction and significance to the results presented in Tables 4.2 - 4.4. The results from the sensitivity analyses restricting the sample to cohabiting same-sex couples at lower risk of contamination issues are presented in Tables 4.9-4.14. The results do not change the main findings. Children with cohabiting same-sex parents are less likely to have private health insurance, and differences in private health insurance are narrower in states with same-sex marriage and second parent adoption available statewide.

4.8.4 Additional Limitations

There are some limitations to this study not already mentioned in the main text. First, same-sex couples residing in states with same-sex marriage, civil unions, domestic partnerships or second-parent adoptions may be more likely to self-report their same-sex relationship. That is, selection bias may be driving some of the results presented here. Additionally, a householder may be more likely to consider a child of a partner as their own in states recognizing their families. If this is true, the composition of these households may be different in states with LGBT-friendly policies compared to states lacking protections for LGBT families. The selection bias associated with self-reporting a same-sex relationship in LGBT-friendly states may bias the results presented here towards the null (or finding no differences in private health insurance coverage in states

that recognize same-sex marriage, civil unions, domestic partnerships or second-parent adoptions). The next extensions of this research should consider using data on the entire universe of LGBT people to determine how and whether same-sex couples with children self-report their families and take up cohabitation, marriage and adoption following the legal recognition of same-sex marriage laws.

Figure 4.1 Same-Sex Marriage and Adoption Laws as of October 2013

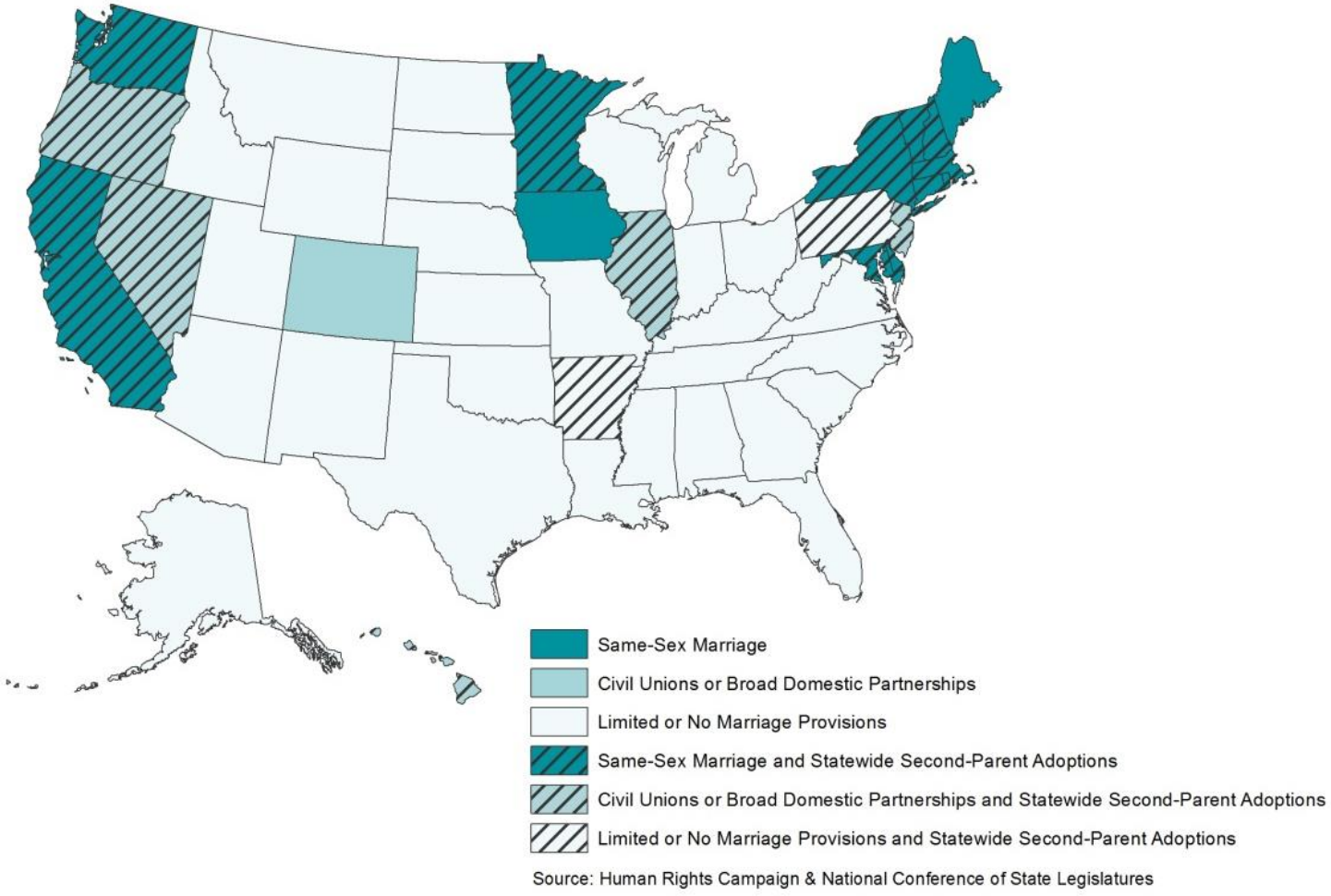


Table 4.1 Selected Characteristics of Children by Family Type

	Weighted Percent				
	Opposite-Sex Married (n=1,369,789)	Opposite-Sex Unmarried (n=101,678)	Same-Sex Dual Fathers (n=1,649)	Same-Sex Dual Mothers (n=3,432)	*P*
Health insurance coverage					<.001
Private	77.5	37.7	63.3	67.5	
Public	15.9	51.5	26.6	25.4	
Uninsured	6.6	10.8	10.1	7.1	
Age group, years					<.001
< 1	4.7	9.5	4.9	4.8	
1-5	26.3	34.5	28.1	27.0	
6-17	69.0	55.9	66.9	68.2	
Race/Ethnicity					<.001
White	68.1	48.4	52.6	61.0	
Hispanic	17.1	31.0	24.4	17.5	
Black	5.4	12.1	11.6	11.9	
Asian	5.2	1.4	5.9	3.2	
Multiple/Other	4.1	7.1	5.5	6.4	
Sex					<.001
Male	51.3	51.2	57.6	49.1	
Female	48.7	48.8	42.5	50.9	
Citizenship					
Citizen	96.3	97.8	93.3	95.3	<.001
Naturalized	1.0	0.2	2.7	3.1	
Non-citizen	2.7	2.0	4.0	1.6	

Table 4.1 Selected Characteristics of Children by Family Type

	Weighted Percent				
	Opposite-Sex Married (n=1,369,789)	Opposite-Sex Unmarried (n=101,678)	Same-Sex Dual Fathers (n=1,649)	Same-Sex Dual Mothers (n=3,432)	*P*
Disabled	3.0	4.5	4.9	6.1	<.001
Relationship to reference person					<.001
Biological son or daughter	93.1	90.1	81.9	74.4	
Adopted son or daughter	2.7	1.3	12.6	16.4	
Stepson or stepdaughter	4.3	8.6	5.5	9.2	
Age of reference person, years					<.001
15-24	1.5	11.7	3.8	3.4	
25-34	23.7	44.9	23.7	25.3	
35-44	46.2	32.1	42.4	43.5	
45-54	24.9	10.0	24.0	24.4	
55-64	3.3	1.2	4.9	3.2	
65+	0.3	0.1	1.3	0.2	
Parent's income relative to FPG					<.001
< 100%	9.1	25.9	12.3	12.8	
100%-200%	17.4	31.1	20.4	17.2	
200%-300%	18.1	19.2	19.3	16.1	
300%-400%	16.0	10.8	13.2	13.5	
>400%	39.4	12.9	34.7	40.3	
Work status of parents					<.001
Any adult working full-time	91.1	78.8	89.1	84.2	

Table 4.1 Selected Characteristics of Children by Family Type

	Weighted Percent				
	Opposite-Sex Married (n=1,369,789)	Opposite-Sex Unmarried (n=101,678)	Same-Sex Dual Fathers (n=1,649)	Same-Sex Dual Mothers (n=3,432)	*P*
Only part-time adult workers	5.7	12.1	5.7	10.6	
All adults unemployed	1.8	5.9	2.9	2.2	
All adults not in labor force	1.5	3.2	2.4	2.9	
Highest educational attainment of parents					<.001
Less than high school	5.9	13.2	11.5	4.8	
High school graduate	14.2	30.8	16.9	12.1	
Some college	30.8	42.1	30.3	32.2	
College degree or more	49.1	13.9	41.4	50.9	
Total number of children in household					<.001
< 2	62.4	63.6	61.6	70.9	
≥ 3	37.6	36.4	38.4	29.1	
Primary language spoken at home					<.001
English only	71.0	66.0	61.1	74.6	
Not English	29.0	34.0	38.9	25.4	
MSA residence	84.6	82.6	88.5	89.0	<.001

FPG indicates federal poverty guidelines defined by the US Department of Health and Human Services. MSA indicates Metropolitan Statistical Area. Source: 2008-2010 American Community Survey.

Table 4.2 Factors Associated with Children's Type of Health Insurance

	Private vs. Uninsured			Public vs. Uninsured		
	RRR	95% CI		RRR	95% CI	
Family Type						
Opposite-Sex, Married	1.00	Reference		1.00	Reference	
Opposite-Sex, Unmarried	0.46	(0.44-0.48)	**	1.42	(1.36-1.48)	**
Same-Sex, Dual Fathers	0.55	(0.39-0.78)	**	1.13	(0.79-1.62)	
Same-Sex, Dual Mothers	0.60	(0.47-0.78)	**	1.05	(0.81-1.36)	
Age group, years						
< 1	1.00	Reference		1.00	Reference	
1-5	0.67	(0.63-0.7)	**	0.62	(0.59-0.66)	**
6-17	0.55	(0.52-0.58)	**	0.44	(0.41-0.46)	**
Race/Ethnicity						
White	1.00	Reference		1.00	Reference	
Hispanic	0.81	(0.78-0.85)	**	1.16	(1.1-1.22)	**
Black	0.96	(0.91-1.01)		1.40	(1.32-1.48)	**
Asian	1.15	(1.07-1.23)	**	1.43	(1.33-1.54)	**
Multiple/Other	0.77	(0.73-0.82)	**	0.99	(0.93-1.06)	
Sex						
Male	1.00	Reference		1.00	Reference	
Female	0.99	(0.97-1.01)		0.99	(0.97-1.01)	
Citizenship						
Citizen	1.00	Reference		1.00	Reference	
Naturalized	0.83	(0.75-0.92)	**	0.83	(0.74-0.93)	*
Non-citizen	0.28	(0.26-0.29)	**	0.26	(0.25-0.28)	**
Disability						
No disability	1.00	Reference		1.00	Reference	
Any disability	1.24	(1.17-1.31)	**	2.44	(2.3-2.59)	**
Relationship to reference person						
Biological son or daughter	1.00	Reference		1.00	Reference	
Adopted son or daughter	0.96	(0.89-1.04)		1.97	(1.8-2.15)	**
Stepson or stepdaughter	0.95	(0.91-1.00)		1.14	(1.08-1.2)	**
Age of reference person, years						
15-24	0.75	(0.69-0.81)	**	1.60	(1.49-1.71)	**
25-34	0.89	(0.86-0.92)	**	1.31	(1.26-1.35)	**
35-44	1.00	Reference		1.00	Reference	
45-54	1.04	(1-1.07)	*	0.85	(0.82-0.88)	**
55-64	0.98	(0.91-1.05)		0.84	(0.78-0.9)	**
65+	1.30	(1.07-1.59)	*	1.23	(1.01-1.5)	*

Table 4.2 Factors Associated with Children's Type of Health Insurance

Parents' combined income relative to FPG						
< 100%	0.07	(0.07-0.08)	**	4.86	(4.55-5.19)	**
100%-200%	0.16	(0.15-0.17)	**	3.29	(3.1-3.49)	**
200%-300%	0.33	(0.31-0.34)	**	1.86	(1.75-1.97)	**
300%-400%	0.57	(0.54-0.6)	**	1.27	(1.19-1.36)	**
>400%	1.00	Reference		1.00	Reference	
Work status of parents						
Any adult working full-time	1.00	Reference		1.00	Reference	
Only part-time adult workers	0.48	(0.46-0.5)	**	1.24	(1.19-1.3)	**
All adults unemployed	0.28	(0.25-0.3)	**	1.45	(1.35-1.55)	**
All adults not in labor force	0.54	(0.49-0.6)	**	1.61	(1.47-1.76)	**
Highest educational attainment of parents						
Less than high school	0.16	(0.15-0.17)	**	0.85	(0.8-0.9)	**
High school graduate	0.33	(0.32-0.35)	**	1.04	(0.99-1.09)	
Some college	0.54	(0.52-0.56)	**	1.10	(1.06-1.15)	**
College degree or more	1.00	Reference		1.00	Reference	
Total number of children in household						
< 2	1.00	Reference		1.00	Reference	
≥ 3	1.18	(1.15-1.22)	**	1.25	(1.21-1.29)	**
Primary language spoken at home						
English only	1.00	Reference		1.00	Reference	
Not English	0.51	(0.49-0.53)	**	0.90	(0.86-0.94)	**
Urban/Rural						
Not MSA residence	1.00	Reference		1.00	Reference	
MSA residence	1.33	(1.28-1.38)	**	1.05	(1.01-1.1)	*
Survey year						
2008	1.00	Reference		1.00	Reference	
2009	1.15	(1.12-1.19)	**	1.19	(1.15-1.24)	**
2010	1.21	(1.18-1.25)	**	1.41	(1.36-1.46)	**

Models are weighted and adjusted for variables listed, state of residence and survey year. RRR indicates relative risk ratio; CI, confidence interval; FPG, federal poverty guidelines. Source: 2008-2010 American Community Survey.

** $p < .01$

* $p < .05$

Table 4.3 The Association Between Family Type and Type of Health Insurance Coverage by State Marriage Policies as if January 1, 2008

		Private vs. Uninsured			Public vs. Uninsured		
	n	RRR	95% CI		RRR	95% CI	
Same-Sex Marriage, Civil Unions or Domestic Partnerships[†]							
Opposite-Sex, Married	240,957	1.00	Reference		1.00	Reference	
Opposite-Sex, Unmarried	18,807	0.50	(0.45-0.55)	**	1.32	(1.2-1.45)	**
Same-Sex, Dual Fathers	360	0.43	(0.2-0.94)	*	0.89	(0.38-2.06)	
Same-Sex, Dual Mothers	744	0.83	(0.48-1.41)		1.24	(0.7-2.22)	
No Provisions							
Opposite-Sex, Married	1,128,832	1.00	Reference		1.00	Reference	
Opposite-Sex, Unmarried	82,871	0.48	(0.45-0.5)	**	1.51	(1.44-1.58)	**
Same-Sex, Dual Fathers	1,289	0.61	(0.41-0.92)	*	1.24	(0.83-1.85)	
Same-Sex, Dual Mothers	2,688	0.59	(0.44-0.78)	**	1.07	(0.82-1.42)	

Models are weighted and adjusted for children's age group, race and ethnicity, sex, citizenship, disability, relationship to reference parent, age of reference parent, parents' combined income relative to FPG, work status of parents, highest educational attainment of parents, number of children in household, primary language spoken at home, and survey year. RRR indicates relative risk ratio; CI, confidence interval; FPG, federal poverty guidelines. Source: 2008-2010 American Community Survey.

[†]As of January 1, 2008. States included California, Massachusetts, New Jersey, Vermont and the District of Columbia.

** $p < .01$

* $p < .05$

Table 4.4 The Association Between Family Type and Type of Health Insurance Coverage by State Adoption Policies as of January 1, 2008

	Private vs. Uninsured			Public vs. Uninsured		
	RRR	95% CI		RRR	95% CI	
Second-Parent Adoption Available Statewide[†]						
Opposite-Sex, Married	1.00	Reference		1.00	Reference	
Opposite-Sex, Unmarried	0.51	(0.47-0.55)	**	1.47	(1.37-1.58)	**
Same-Sex, Dual Fathers	0.70	(0.4-1.22)		1.25	(0.68-2.3)	
Same-Sex, Dual Mothers	0.66	(0.41-1.05)		0.89	(0.56-1.43)	
No Provisions						
Opposite-Sex, Married	1.00	Reference		1.00	Reference	
Opposite-Sex, Unmarried	0.46	(0.43-0.48)	**	1.45	(1.38-1.52)	**
Same-Sex, Dual Fathers	0.49	(0.31-0.78)	*	1.07	(0.69-1.65)	
Same-Sex, Dual Mothers	0.60	(0.44-0.81)	*	1.23	(0.91-1.65)	

Models are weighted and adjusted for children's age group, race and ethnicity, sex, citizenship, disability, relationship to reference parent, age of reference parent, parents' combined income relative to FPG, work status of parents, highest educational attainment of parents, total number of children in household, primary language spoken at home and survey year. RRR indicates relative risk ratio; CI, confidence interval; FPG, federal poverty guidelines. Source: 2008-2010 American Community Survey.

[†]As of January 1, 2008. States included California, Colorado, Connecticut, Illinois, Indiana, Massachusetts, New Jersey, New York, Pennsylvania, Vermont, and the District of Columbia.

** $p < .01$

* $p < .05$

Complete Regression Tables

The following tables present complete regression results for the abbreviated results presented in Tables 4.3 and 4.4.

Table 4.5 The Association Between Family Type and Children's Health Insurance Coverage in States with Same-Sex Marriage, Civil Unions or Domestic Partnerships as of January 1, 2008

	Private vs. Uninsured			Public vs. Uninsured		
	RRR	95% CI		RRR	95% CI	
Family Type						
Opposite-Sex, Married	1.00	Reference		1.00	Reference	
Opposite-Sex, Unmarried	0.50	(0.45-0.55)	**	1.32	(1.2-1.45)	**
Same-Sex, Dual Fathers	0.43	(0.2-0.94)	*	0.89	(0.38-2.06)	
Same-Sex, Dual Mothers	0.83	(0.48-1.41)		1.24	(0.7-2.22)	
Age group, years						
< 1	1.00	Reference		1.00	Reference	
1-5	0.63	(0.55-0.72)	**	0.63	(0.56-0.72)	**
6-17	0.48	(0.42-0.55)	**	0.40	(0.35-0.46)	**
Race/Ethnicity						
White	1.00	Reference		1.00	Reference	
Hispanic	0.60	(0.54-0.66)	**	0.74	(0.67-0.82)	**
Black	0.86	(0.72-1.02)		1.33	(1.1-1.6)	*
Asian	0.94	(0.84-1.07)		1.04	(0.91-1.19)	
Multiple/Other	0.87	(0.73-1.04)		0.96	(0.79-1.16)	
Sex						
Male	1.00	Reference		1.00	Reference	
Female	1.00	(0.95-1.04)		1.00	(0.96-1.04)	
Citizenship						
Citizen	1.00	Reference		1.00	Reference	
Naturalized	0.78	(0.64-0.95)	*	0.98	(0.8-1.2)	
Non-citizen	0.30	(0.27-0.33)	**	0.39	(0.36-0.43)	**
Disability						
No disability	1.00	Reference		1.00	Reference	
Any disability	1.19	(1.02-1.39)	*	2.02	(1.74-2.35)	**
Relationship to reference person						
Biological son or daughter	1.00	Reference		1.00	Reference	
Adopted son or daughter	1.13	(0.9-1.43)		1.92	(1.51-2.44)	**
Stepson or stepdaughter	0.97	(0.85-1.1)		1.00	(0.87-1.15)	
Age of reference person, years						
15-24	0.71	(0.57-0.88)	*	1.40	(1.15-1.7)	*
25-34	0.92	(0.84-1)	*	1.27	(1.17-1.38)	**
35-44	1.00	Reference		1.00	Reference	
45-54	0.95	(0.88-1.02)		0.78	(0.72-0.85)	**

55-64	0.97	(0.84-1.13)		0.82	(0.71-0.94)	*
65+	0.85	(0.53-1.37)		1.13	(0.68-1.86)	
Parents' combined income relative to FPG						
< 100%	0.07	(0.06-0.07)	**	3.86	(3.33-4.46)	**
100%-200%	0.14	(0.13-0.16)	**	3.02	(2.64-3.45)	**
200%-300%	0.29	(0.26-0.32)	**	2.08	(1.81-2.38)	**
300%-400%	0.52	(0.46-0.58)	**	1.35	(1.16-1.58)	**
>400%	1.00	Reference		1.00	Reference	
Work status of parents						
Any adult working full-time	1.00	Reference		1.00	Reference	
Only part-time adult workers	0.52	(0.47-0.58)	**	1.23	(1.12-1.35)	**
All adults unemployed	0.31	(0.26-0.37)	**	1.31	(1.13-1.51)	**
All adults not in labor force	0.55	(0.44-0.69)	**	1.46	(1.2-1.77)	**
Highest educational attainment of parents						
Less than high school	0.27	(0.24-0.3)	**	1.14	(1.02-1.29)	*
High school graduate	0.44	(0.4-0.49)	**	1.16	(1.04-1.3)	*
Some college	0.64	(0.58-0.7)	**	1.10	(0.99-1.22)	
College degree or more	1.00	Reference		1.00	Reference	
Total number of children in household						
< 2	1.00	Reference		1.00	Reference	
≥ 3	1.28	(1.2-1.38)	**	1.35	(1.26-1.44)	**
Primary language spoken at home						
English only	1.00	Reference		1.00	Reference	
Not English	0.58	(0.53-0.64)	**	1.31	(1.18-1.45)	**
Urban/Rural						
Not MSA residence						
MSA residence	1.79	(1.46-2.2)	**	0.70	(0.56-0.86)	*
Survey year						
2008	1.00	Reference		1.00	Reference	
2009	1.14	(1.06-1.23)	*	1.11	(1.02-1.2)	*
2010	1.20	(1.11-1.29)	**	1.29	(1.19-1.39)	**

Models are weighted and adjusted for variables listed. Analysis restricted to children living in states with same-sex marriage, civil unions or domestic partnership policies in place as of January 1, 2008, which includes California, the District of Columbia, Massachusetts, New Jersey and Vermont. RRR indicates relative risk ratio; CI, confidence interval; FPG, federal poverty guidelines. Source: 2008-2010 American Community Survey.

** $p < .01$

* $p < .05$

Table 4.6 The Association Between Family Type and Children's Health Insurance Coverage in States Without Marriage Provisions as of January 1, 2008

	Private vs. Uninsured			Public vs. Uninsured		
	RRR	95% CI		RRR	95% CI	
Family Type						
Opposite-Sex, Married	1.00	Reference		1.00	Reference	
Opposite-Sex, Unmarried	0.48	(0.45-0.5)	**	1.51	(1.44-1.58)	**
Same-Sex, Dual Fathers	0.61	(0.41-0.92)	*	1.24	(0.83-1.85)	
Same-Sex, Dual Mothers	0.59	(0.44-0.78)	**	1.07	(0.82-1.42)	
Age group, years						
< 1	1.00	Reference		1.00	Reference	
1-5	0.67	(0.64-0.71)	**	0.63	(0.59-0.66)	**
6-17	0.56	(0.53-0.6)	**	0.45	(0.42-0.47)	**
Race/Ethnicity						
White	1.00	Reference		1.00	Reference	
Hispanic	0.65	(0.62-0.68)	**	0.99	(0.94-1.04)	
Black	0.85	(0.8-0.9)	**	1.36	(1.28-1.44)	**
Asian	1.23	(1.13-1.33)	**	1.54	(1.41-1.69)	**
Multiple/Other	0.71	(0.67-0.76)	**	0.91	(0.85-0.98)	*
Sex						
Male	1.00	Reference		1.00	Reference	
Female	0.99	(0.97-1.01)		0.99	(0.97-1.01)	
Citizenship						
Citizen	1.00	Reference		1.00	Reference	
Naturalized	0.94	(0.84-1.06)		0.87	(0.77-0.99)	*
Non-citizen	0.29	(0.27-0.3)	**	0.24	(0.22-0.25)	**
Disability						
No disability	1.00	Reference		1.00	Reference	
Any disability	1.23	(1.16-1.31)	**	2.51	(2.36-2.67)	**
Relationship to reference person						
Biological son or daughter	1.00	Reference		1.00	Reference	
Adopted son or daughter	0.93	(0.85-1.01)		1.94	(1.77-2.13)	**
Stepson or stepdaughter	0.91	(0.86-0.96)	**	1.12	(1.06-1.18)	**
Age of reference person, years						
15-24	0.73	(0.67-0.79)	**	1.55	(1.44-1.67)	**
25-34	0.87	(0.84-0.91)	**	1.28	(1.23-1.33)	**
35-44	1.00	Reference		1.00	Reference	
45-54	1.07	(1.03-1.11)	**	0.89	(0.85-0.92)	**

55-64	0.99	(0.91-1.06)		0.85	(0.78-0.93)	**
65+	1.43	(1.16-1.76)	*	1.24	(1.01-1.51)	*
Parents' combined income relative to FPG						
< 100%	0.07	(0.07-0.08)	**	4.75	(4.42-5.11)	**
100%-200%	0.16	(0.16-0.17)	**	3.17	(2.97-3.39)	**
200%-300%	0.34	(0.32-0.35)	**	1.74	(1.63-1.86)	**
300%-400%	0.58	(0.55-0.61)	**	1.23	(1.15-1.33)	**
>400%	1.00	Reference		1.00	Reference	
Work status of parents						
Any adult working full-time	1.00	Reference		1.00	Reference	
Only part-time adult workers	0.49	(0.47-0.52)	**	1.27	(1.21-1.33)	**
All adults unemployed	0.28	(0.25-0.31)	**	1.50	(1.39-1.62)	**
All adults not in labor force	0.55	(0.49-0.61)	**	1.69	(1.53-1.87)	**
Highest educational attainment of parents						
Less than high school	0.15	(0.14-0.16)	**	0.82	(0.77-0.87)	**
High school graduate	0.33	(0.31-0.34)	**	1.06	(1.01-1.12)	*
Some college	0.53	(0.51-0.56)	**	1.12	(1.07-1.17)	**
College degree or more	1.00	Reference		1.00	Reference	
Total number of children in household						
< 2	1.00	Reference		1.00	Reference	
≥ 3	1.18	(1.15-1.22)	**	1.22	(1.18-1.26)	**
Primary language spoken at home						
English only	1.00	Reference		1.00	Reference	
Not English	0.50	(0.48-0.53)	**	0.88	(0.84-0.92)	**
Urban/Rural						
Not MSA residence						
MSA residence	1.25	(1.21-1.3)	**	1.04	(1-1.08)	*
Survey year						
2008	1.00	Reference		1.00	Reference	
2009	1.15	(1.12-1.2)	**	1.21	(1.17-1.26)	**
2010	1.21	(1.17-1.26)	**	1.43	(1.37-1.48)	**

Models are weighted and adjusted for variables listed. Analysis restricted to children living in states without same-sex marriage, civil unions or domestic partnership policies in place as of January 1, 2008, which includes all states except California, the District of Columbia, Massachusetts, New Jersey and Vermont. RRR indicates relative risk ratio; CI, confidence interval; FPG, federal poverty guidelines. Source: 2008-2010 American Community Survey.

** $p < .01$

* $p < .05$

Table 4.7 The Association Between Family Type and Children's Health Insurance Coverage in States with Second-Parent Adoption Available Statewide as of January 1, 2008

	Private vs. Uninsured			Public vs. Uninsured		
	RRR	95% CI		RRR	95% CI	
Family Type						
Opposite-Sex, Married	1.00	Reference		1.00	Reference	
Opposite-Sex, Unmarried	0.51	(0.47-0.55)	**	1.47	(1.37-1.58)	**
Same-Sex, Dual Fathers	0.70	(0.4-1.22)		1.25	(0.68-2.3)	
Same-Sex, Dual Mothers	0.66	(0.41-1.05)		0.89	(0.56-1.43)	
Age group, years						
< 1	1.00	Reference		1.00	Reference	
1-5	0.74	(0.68-0.81)	**	0.73	(0.67-0.8)	**
6-17	0.61	(0.56-0.67)	**	0.51	(0.46-0.56)	**
Race/Ethnicity						
White	1.00	Reference		1.00	Reference	
Hispanic	0.83	(0.77-0.89)	**	1.11	(1.02-1.2)	*
Black	0.87	(0.77-0.98)	*	1.38	(1.22-1.56)	**
Asian	1.10	(1-1.22)		1.44	(1.29-1.6)	**
Multiple/Other	0.90	(0.79-1.02)		1.11	(0.96-1.28)	
Sex						
Male	1.00	Reference		1.00	Reference	
Female	1.00	(0.97-1.03)		1.00	(0.97-1.03)	
Citizenship						
Citizen	1.00	Reference		1.00	Reference	
Naturalized	0.86	(0.74-1.01)	*	1.04	(0.88-1.23)	
Non-citizen	0.30	(0.28-0.33)	**	0.41	(0.39-0.45)	**
Disability						
No disability	1.00	Reference		1.00	Reference	
Any disability	1.11	(1-1.24)		2.07	(1.87-2.31)	**
Relationship to reference person						
Biological son or daughter	1.00	Reference		1.00	Reference	
Adopted son or daughter	0.97	(0.83-1.12)		1.75	(1.49-2.05)	**
Stepson or stepdaughter	0.90	(0.82-0.99)	*	1.03	(0.93-1.13)	
Age of reference person, years						
15-24	0.69	(0.59-0.81)	**	1.47	(1.28-1.69)	**
25-34	0.82	(0.77-0.88)	**	1.21	(1.14-1.29)	**
35-44	1.00	Reference		1.00	Reference	

45-54	1.03	(0.97-1.09)		0.85	(0.8-0.91)	**
55-64	1.02	(0.91-1.14)		0.85	(0.76-0.96)	*
65+	1.07	(0.75-1.55)		1.12	(0.78-1.62)	
Parents' combined income relative to FPG						
< 100%	0.07	(0.07-0.08)	**	4.51	(4.04-5.03)	**
100%-200%	0.16	(0.15-0.18)	**	3.48	(3.15-3.84)	**
200%-300%	0.33	(0.31-0.36)	**	2.26	(2.05-2.5)	**
300%-400%	0.57	(0.52-0.62)	**	1.55	(1.38-1.73)	**
>400%	1.00	Reference		1.00	Reference	
Work status of parents						
Any adult working full-time	1.00	Reference		1.00	Reference	
Only part-time adult workers	0.52	(0.49-0.57)	**	1.20	(1.11-1.29)	**
All adults unemployed	0.31	(0.27-0.36)	**	1.33	(1.19-1.48)	**
All adults not in labor force	0.49	(0.41-0.58)	**	1.40	(1.21-1.62)	**
Highest educational attainment of parents						
Less than high school	0.18	(0.16-0.2)	**	0.76	(0.7-0.84)	**
High school graduate	0.39	(0.36-0.42)	**	1.03	(0.95-1.12)	
Some college	0.59	(0.55-0.63)	**	1.05	(0.97-1.13)	
College degree or more	1.00	Reference		1.00	Reference	
Total number of children in household						
< 2	1.00	Reference		1.00	Reference	
≥ 3	1.18	(1.12-1.24)	**	1.19	(1.13-1.25)	**
Primary language spoken at home						
English only	1.00	Reference		1.00	Reference	
Not English	0.48	(0.45-0.51)	**	1.00	(0.93-1.08)	
Urban/Rural						
Not MSA residence						
MSA residence	1.74	(1.6-1.89)	**	1.32	(1.2-1.44)	**
Survey year						
2008	1.00	Reference		1.00	Reference	
2009	1.16	(1.09-1.22)	**	1.22	(1.15-1.29)	**
2010	1.16	(1.09-1.23)	**	1.32	(1.24-1.4)	**

Models are weighted and adjusted for variables listed. Analysis restricted to children living in states with second-parent adoption available statewide as of January 1, 2008, which includes California, Colorado, Connecticut, the District of Columbia, Illinois, Indiana, Massachusetts, New York, New Jersey, Pennsylvania and Vermont. RRR indicates relative risk ratio; CI, confidence interval; FPG, federal poverty guidelines. Source: 2008-2010 American Community Survey.

** $p < .01$

* $p < .05$

Table 4.8 The Association Between Family Type and Children's Health Insurance Coverage in States Without Second-Parent Adoption Available Statewide as of January 1, 2008

	Private vs. Uninsured			Public vs. Uninsured		
	RRR	95% CI		RRR	95% CI	
Family Type						
Opposite-Sex, Married	1.00	Reference		1.00	Reference	
Opposite-Sex, Unmarried	0.46	(0.43-0.48)	**	1.45	(1.38-1.52)	**
Same-Sex, Dual Fathers	0.49	(0.31-0.78)	*	1.07	(0.69-1.65)	
Same-Sex, Dual Mothers	0.60	(0.44-0.81)	*	1.23	(0.91-1.65)	
Age group, years						
< 1	1.00	Reference		1.00	Reference	
1-5	0.64	(0.6-0.68)	**	0.59	(0.55-0.62)	**
6-17	0.53	(0.5-0.56)	**	0.41	(0.39-0.44)	**
Race/Ethnicity						
White	1.00	Reference		1.00	Reference	
Hispanic	0.59	(0.56-0.62)	**	0.90	(0.85-0.96)	*
Black	0.86	(0.81-0.92)	**	1.38	(1.29-1.48)	**
Asian	1.22	(1.11-1.34)	**	1.26	(1.13-1.41)	**
Multiple/Other	0.71	(0.66-0.76)	**	0.89	(0.83-0.97)	*
Sex						
Male	1.00	Reference		1.00	Reference	
Female	0.99	(0.97-1.01)		0.99	(0.97-1.01)	
Citizenship						
Citizen	1.00	Reference		1.00	Reference	
Naturalized	0.91	(0.8-1.04)		0.76	(0.65-0.88)	**
Non-citizen	0.30	(0.28-0.32)	**	0.19	(0.18-0.21)	**
Disability						
No disability	1.00	Reference		1.00	Reference	
Any disability	1.29	(1.2-1.38)	**	2.65	(2.47-2.84)	**
Relationship to reference person						
Biological son or daughter	1.00	Reference		1.00	Reference	
Adopted son or daughter	0.96	(0.87-1.06)		2.08	(1.87-2.31)	**
Stepson or stepdaughter	0.94	(0.89-0.99)	*	1.15	(1.08-1.22)	**
Age of reference person, years						
15-24	0.76	(0.7-0.83)	**	1.59	(1.46-1.72)	**
25-34	0.92	(0.88-0.95)	**	1.32	(1.27-1.38)	**
35-44	1.00	Reference		1.00	Reference	
45-54	1.04	(1-1.09)	*	0.85	(0.81-0.9)	**

55-64	0.95	(0.87-1.03)		0.83	(0.75-0.91)	**
65+	1.41	(1.12-1.76)	*	1.26	(1.01-1.57)	*
Parents' combined income relative to FPG						
< 100%	0.07	(0.07-0.08)	**	4.74	(4.37-5.15)	**
100%-200%	0.16	(0.15-0.17)	**	3.04	(2.82-3.27)	**
200%-300%	0.33	(0.31-0.35)	**	1.60	(1.49-1.73)	**
300%-400%	0.57	(0.54-0.61)	**	1.12	(1.03-1.22)	*
>400%	1.00	Reference		1.00	Reference	
Work status of parents						
Any adult working full-time	1.00	Reference		1.00	Reference	
Only part-time adult workers	0.47	(0.44-0.5)	**	1.28	(1.21-1.35)	**
All adults unemployed	0.26	(0.23-0.29)	**	1.52	(1.39-1.66)	**
All adults not in labor force	0.57	(0.5-0.65)	**	1.76	(1.58-1.97)	**
Highest educational attainment of parents						
Less than high school	0.16	(0.15-0.17)	**	0.94	(0.88-1.01)	*
High school graduate	0.32	(0.3-0.33)	**	1.09	(1.03-1.15)	*
Some college	0.53	(0.51-0.55)	**	1.16	(1.1-1.22)	**
College degree or more	1.00	Reference		1.00	Reference	
Total number of children in household						
< 2	1.00	Reference		1.00	Reference	
≥ 3	1.21	(1.16-1.25)	**	1.27	(1.22-1.32)	**
Primary language spoken at home						
English only	1.00	Reference		1.00	Reference	
Not English	0.52	(0.49-0.54)	**	0.85	(0.8-0.9)	**
Urban/Rural						
Not MSA residence						
MSA residence	1.14	(1.1-1.19)	**	0.93	(0.89-0.97)	**
Survey year						
2008	1.00	Reference		1.00	Reference	
2009	1.15	(1.11-1.19)	**	1.18	(1.13-1.23)	**
2010	1.23	(1.19-1.28)	**	1.44	(1.38-1.5)	**

Models are weighted and adjusted for variables listed. Analysis restricted to children living in states without second-parent adoption available statewide as of January 1, 2008, which includes all states except California, Colorado, Connecticut, the District of Columbia, Illinois, Indiana, Massachusetts, New York, New Jersey, Pennsylvania and Vermont. RRR indicates relative risk ratio; CI, confidence interval; FPG, federal poverty guidelines. Source: 2008-2010 American Community Survey.

** $p < .01$

* $p < .05$

Sensitivity Analysis

The following tables present the results from the sensitivity analysis, which restricts the sample to cohabiting same-sex couples at lower risk of contamination issues, or where opposite-sex parents may have misreported one member's sex. The sample is restricted to respondents using the CATI/CAPI versions and respondents using the mail version of the ACS and not receiving a marital status allocation flag (Gates & Steinberger 2009).

Table 4.9 Selected Characteristics of Children by Family Type for the Sensitivity Sample

	Weighted Percent				
	Opposite-Sex Married (n=1,366,214)	Opposite-Sex Unmarried (n=99,074)	Same-Sex Dual Fathers (n=827)	Same-Sex Dual Mothers (n=2,332)	*P*
Health insurance coverage					<.001
Private	77.5	37.6	49.7	64.6	
Public	15.9	51.6	36.5	27.8	
Uninsured	6.6	10.8	13.8	7.6	
Age group, years					<.001
< 1	4.7	9.6	5.2	4.3	
1-5	26.3	34.7	31.0	27.4	
6-17	69.0	55.7	63.8	68.4	
Race/Ethnicity					<.001
White	68.1	48.5	45.7	59.9	
Hispanic	17.1	31.2	29.9	18.8	
Black	5.4	11.9	14.8	11.8	
Asian	5.2	1.3	2.9	2.5	
Multiple/Other	4.1	7.1	6.8	6.9	
Sex					<.001
Male	51.3	51.2	58.6	51.6	
Female	48.7	48.8	41.4	48.4	
Citizenship					
Citizen	96.3	97.8	94.0	95.4	<.001
Naturalized	1.0	0.2	1.9	3.3	
Non-citizen	2.7	2.0	4.1	1.4	
Disabled	3.0	4.5	5.7	7.1	<.001
Relationship to reference person					<.001
Biological son or daughter	93.1	90.1	76.7	70.0	
Adopted son or daughter	2.7	1.3	17.2	19.2	
Stepson or stepdaughter	4.3	8.6	6.2	10.8	
Age of reference person, years					<.001
15-24	1.5	11.7	6.3	3.8	
25-34	23.8	45.2	28.7	26.3	

35-44	46.2	32.0	39.3	43.4	
45-54	24.9	9.8	19.3	23.5	
55-64	3.3	1.1	5.1	2.8	
65+	0.3	0.1	1.3	0.2	
Parent's income relative to FPG					<.001
< 100%	9.1	25.9	15.1	13.9	
100%-200%	17.4	31.2	26.1	17.5	
200%-300%	18.1	19.2	18.4	16.3	
300%-400%	16.0	10.8	12.2	13.0	
>400%	39.5	12.9	28.2	39.5	
Work status of parents					<.001
Any adult working full-time	91.1	78.8	86.0	83.3	
Only part-time adult workers	5.7	12.1	6.4	10.8	
All adults unemployed	1.8	5.9	3.9	2.5	
All adults not in labor force	1.5	3.2	3.7	3.4	
Highest educational attainment of parents					<.001
Less than high school	5.9	13.3	15.6	4.4	
High school graduate	14.2	30.7	19.8	12.5	
Some college	30.8	42.1	32.6	34.3	
College degree or more	49.1	13.8	31.9	48.8	
Total number of children in household					<.001
< 2	62.4	63.8	60.3	71.5	
≥ 3	37.6	36.2	39.7	28.5	
Primary language spoken at home					<.001
English only	71.0	66.1	64.0	75.3	
Not English	29.0	33.9	36.0	24.7	
MSA residence	81.3	77.8	87.2	87.7	<.001

FPG indicates federal poverty guidelines defined by the US Department of Health and Human Services. MSA indicates Metropolitan Statistical Area. Source: 2008-2010 American Community Survey.

Table 4.10 Factors Associated with Children's Type of Health Insurance in Sensitivity Sample

	Private vs. Uninsured			Public vs. Uninsured		
	RRR	95% CI		RRR	95% CI	
Family Type						
Opposite-Sex, Married	1.00	Reference		1.00	Reference	
Opposite-Sex, Unmarried	0.46	(0.44-0.48)	**	1.42	(1.36-1.48)	**
Same-Sex, Dual Fathers	0.38	(0.24-0.6)	**	1.09	(0.71-1.67)	
Same-Sex, Dual Mothers	0.54	(0.4-0.74)	**	1.01	(0.75-1.37)	
Age group, years						
< 1	1.00	Reference		1.00	Reference	
1-5	0.67	(0.63-0.7)	**	0.62	(0.59-0.66)	**
6-17	0.55	(0.53-0.58)	**	0.44	(0.41-0.46)	**
Race/Ethnicity						
White	1.00	Reference		1.00	Reference	
Hispanic	0.82	(0.78-0.85)	**	1.16	(1.1-1.22)	**
Black	0.96	(0.91-1.01)		1.40	(1.32-1.48)	**
Asian	1.15	(1.07-1.23)	**	1.44	(1.33-1.55)	**
Multiple/Other	0.77	(0.73-0.82)	**	0.99	(0.92-1.06)	
Sex						
Male	1.00	Reference		1.00	Reference	
Female	0.99	(0.97-1.01)		0.99	(0.97-1.01)	
Citizenship						
Citizen	1.00	Reference		1.00	Reference	
Naturalized	0.83	(0.75-0.92)	*	0.83	(0.74-0.93)	*
Non-citizen	0.28	(0.27-0.29)	**	0.26	(0.25-0.28)	**
Disability						
No disability	1.00	Reference		1.00	Reference	
Any disability	1.24	(1.17-1.31)	**	2.45	(2.31-2.6)	**
Relationship to reference person						
Biological son or daughter	1.00	Reference		1.00	Reference	
Adopted son or daughter	0.96	(0.89-1.04)		1.97	(1.81-2.16)	**
Stepson or stepdaughter	0.96	(0.91-1.01)		1.15	(1.09-1.21)	**
Age of reference person, years						
15-24	0.75	(0.7-0.81)	**	1.60	(1.49-1.71)	**
25-34	0.89	(0.86-0.92)	**	1.31	(1.26-1.35)	**
35-44	1.00	Reference		1.00	Reference	
45-54	1.04	(1-1.07)	*	0.85	(0.82-0.89)	**
55-64	0.98	(0.91-1.05)		0.84	(0.78-0.9)	**

65+	1.31	(1.07-1.6)	**	1.23	(1-1.5)	*
Parents' combined income relative to FPG						
< 100%	0.07	(0.07-0.08)	**	4.89	(4.58-5.23)	**
100%-200%	0.16	(0.15-0.17)	**	3.31	(3.12-3.52)	**
200%-300%	0.33	(0.31-0.34)	**	1.86	(1.76-1.98)	**
300%-400%	0.57	(0.54-0.59)	**	1.28	(1.19-1.37)	**
>400%	1.00	Reference		1.00	Reference	
Work status of parents						
Any adult working full-time	1.00	Reference		1.00	Reference	
Only part-time adult workers	0.48	(0.45-0.5)	**	1.24	(1.19-1.3)	**
All adults unemployed	0.27	(0.25-0.3)	**	1.45	(1.35-1.55)	**
All adults not in labor force	0.54	(0.48-0.59)	**	1.61	(1.47-1.76)	**
Highest educational attainment of parents						
Less than high school	0.16	(0.15-0.17)	**	0.85	(0.81-0.9)	**
High school graduate	0.33	(0.32-0.35)	**	1.04	(0.99-1.09)	
Some college	0.54	(0.52-0.56)	**	1.10	(1.06-1.15)	**
College degree or more	1.00	Reference		1.00	Reference	
Total number of children in household						
< 2	1.00	Reference		1.00	Reference	
≥ 3	1.18	(1.15-1.22)	**	1.25	(1.21-1.29)	**
Primary language spoken at home						
English only	1.00	Reference		1.00	Reference	
Not English	0.51	(0.49-0.53)	**	0.90	(0.86-0.94)	**
Urban/Rural						
Not MSA residence	1.00	Reference		1.00	Reference	
MSA residence	1.33	(1.28-1.38)	**	1.05	(1.01-1.09)	*
Survey year						
2008	1.00	Reference		1.00	Reference	
2009	1.15	(1.12-1.19)	**	1.20	(1.16-1.24)	**
2010	1.22	(1.18-1.26)	**	1.41	(1.36-1.46)	**

Models are weighted and adjusted for variables listed, state of residence and survey year. RRR indicates relative risk ratio; CI, confidence interval; FPG, federal poverty guidelines. Source: 2008-2010 American Community Survey.

** $p < .01$

* $p < .05$

Table 4.11 The Association Between Family Type and Children's Health Insurance Coverage in States with Same-Sex Marriage, Civil Unions or Domestic Partnerships as of January 1, 2008 in Sensitivity Sample

	Private vs. Uninsured			Public vs. Uninsured		
	RRR	95% CI		RRR	95% CI	
Family Type						
Opposite-Sex, Married	1.00	Reference		1.00	Reference	
Opposite-Sex, Unmarried	0.49	(0.45-0.55)	**	1.32	(1.2-1.45)	**
Same-Sex, Dual Fathers	0.26	(0.09-0.72)	*	0.81	(0.3-2.2)	
Same-Sex, Dual Mothers	0.80	(0.41-1.56)		1.13	(0.54-2.37)	
Age group, years						
< 1	1.00	Reference		1.00	Reference	
1-5	0.63	(0.55-0.72)	**	0.64	(0.56-0.73)	**
6-17	0.49	(0.43-0.56)	**	0.40	(0.35-0.46)	**
Race/Ethnicity						
White	1.00	Reference		1.00	Reference	
Hispanic	0.59	(0.54-0.65)	**	0.74	(0.66-0.82)	**
Black	0.85	(0.71-1.02)		1.32	(1.1-1.6)	*
Asian	0.95	(0.84-1.07)		1.04	(0.91-1.2)	
Multiple/Other	0.87	(0.73-1.03)		0.96	(0.79-1.16)	
Sex						
Male	1.00	Reference		1.00	Reference	
Female	1.00	(0.96-1.04)		1.00	(0.96-1.04)	
Citizenship						
Citizen	1.00	Reference		1.00	Reference	
Naturalized	0.78	(0.64-0.96)	*	0.99	(0.81-1.22)	
Non-citizen	0.30	(0.27-0.33)	**	0.39	(0.36-0.43)	**
Disability						
No disability	1.00	Reference		1.00	Reference	
Any disability	1.19	(1.02-1.39)	*	2.03	(1.75-2.36)	**
Relationship to reference person						
Biological son or daughter	1.00	Reference		1.00	Reference	
Adopted son or daughter	1.13	(0.9-1.42)		1.92	(1.51-2.45)	**
Stepson or stepdaughter	0.97	(0.85-1.1)		1.00	(0.87-1.15)	
Age of reference person, years						
15-24	0.72	(0.58-0.89)	*	1.41	(1.15-1.71)	*
25-34	0.92	(0.84-1)	*	1.27	(1.17-1.39)	**
35-44	1.00	Reference		1.00	Reference	
45-54	0.95	(0.88-1.02)		0.78	(0.72-0.85)	**

55-64	0.97	(0.83-1.12)		0.81	(0.7-0.94)	*
65+	0.85	(0.53-1.37)		1.12	(0.68-1.85)	
Parents' combined income relative to FPG						
< 100%	0.07	(0.06-0.07)	**	3.88	(3.35-4.49)	**
100%-200%	0.14	(0.12-0.15)	**	3.03	(2.65-3.46)	**
200%-300%	0.29	(0.26-0.32)	**	2.09	(1.82-2.39)	**
300%-400%	0.51	(0.46-0.58)	**	1.35	(1.16-1.58)	**
>400%	1.00	Reference		1.00	Reference	
Work status of parents						
Any adult working full-time	1.00	Reference		1.00	Reference	
Only part-time adult workers	0.52	(0.47-0.58)	**	1.23	(1.12-1.35)	**
All adults unemployed	0.31	(0.26-0.37)	**	1.31	(1.13-1.51)	**
All adults not in labor force	0.55	(0.44-0.68)	**	1.45	(1.19-1.76)	**
Highest educational attainment of parents						
Less than high school	0.27	(0.24-0.3)	**	1.15	(1.02-1.29)	*
High school graduate	0.44	(0.4-0.49)	**	1.16	(1.04-1.3)	*
Some college	0.64	(0.58-0.7)	**	1.10	(0.99-1.22)	
College degree or more	1.00	Reference		1.00	Reference	
Total number of children in household						
< 2	1.00	Reference		1.00	Reference	
≥ 3	1.29	(1.2-1.38)	**	1.34	(1.25-1.44)	**
Primary language spoken at home						
English only	1.00	Reference		1.00	Reference	
Not English	0.58	(0.53-0.64)	**	1.31	(1.18-1.45)	**
Urban/Rural						
Not MSA residence	1.00	Reference		1.00	Reference	
MSA residence	1.80	(1.47-2.22)	**	0.70	(0.57-0.87)	*
Survey year						
2008	1.00	Reference		1.00	Reference	
2009	1.14	(1.05-1.22)	*	1.11	(1.03-1.2)	*
2010	1.20	(1.11-1.3)	**	1.29	(1.2-1.4)	**

Models are weighted and adjusted for variables listed. Analysis restricted to children living in states with same-sex marriage, civil unions or domestic partnership policies in place as of January 1, 2008, which includes California, the District of Columbia, Massachusetts, New Jersey and Vermont. RRR indicates relative risk ratio; CI, confidence interval; FPG, federal poverty guidelines. Source: 2008-2010 American Community Survey.

** $p < .01$

* $p < .05$

Table 4.12 The Association Between Family Type and Children's Health Insurance Coverage in States Without Marriage Provisions as of January 1, 2008 in Sensitivity Sample

	Private vs. Uninsured			Public vs. Uninsured		
	RRR	95% CI		RRR	95% CI	
Family Type						
Opposite-Sex, Married	1.00	Reference		1.00	Reference	
Opposite-Sex, Unmarried	0.48	(0.45-0.5)	**	1.51	(1.44-1.58)	**
Same-Sex, Dual Fathers	0.43	(0.26-0.72)	*	1.20	(0.75-1.92)	
Same-Sex, Dual Mothers	0.53	(0.38-0.75)	**	1.06	(0.77-1.45)	
Age group, years						
< 1	1.00	Reference		1.00	Reference	
1-5	0.67	(0.64-0.71)	**	0.62	(0.59-0.66)	**
6-17	0.56	(0.53-0.6)	**	0.45	(0.42-0.47)	**
Race/Ethnicity						
White	1.00	Reference		1.00	Reference	
Hispanic	0.65	(0.62-0.68)	**	0.99	(0.94-1.04)	
Black	0.85	(0.8-0.9)	**	1.36	(1.28-1.44)	**
Asian	1.23	(1.13-1.33)	**	1.55	(1.41-1.69)	**
Multiple/Other	0.72	(0.67-0.76)	**	0.91	(0.84-0.97)	*
Sex						
Male	1.00	Reference		1.00	Reference	
Female	0.99	(0.97-1.01)		0.99	(0.97-1.01)	
Citizenship						
Citizen	1.00	Reference		1.00	Reference	
Naturalized	0.94	(0.83-1.06)		0.86	(0.76-0.98)	*
Non-citizen	0.29	(0.27-0.3)	**	0.24	(0.22-0.25)	**
Disability						
No disability	1.00	Reference		1.00	Reference	
Any disability	1.23	(1.16-1.31)	**	2.51	(2.36-2.68)	**
Relationship to reference person						
Biological son or daughter	1.00	Reference		1.00	Reference	
Adopted son or daughter	0.93	(0.85-1.01)		1.95	(1.77-2.14)	**
Stepson or stepdaughter	0.91	(0.87-0.96)	*	1.12	(1.06-1.19)	**
Age of reference person, years						
15-24	0.73	(0.67-0.79)	**	1.55	(1.44-1.67)	**
25-34	0.87	(0.84-0.91)	**	1.28	(1.24-1.33)	**
35-44	1.00	Reference		1.00	Reference	
45-54	1.07	(1.03-1.11)	**	0.89	(0.85-0.93)	**

55-64	0.99	(0.92-1.07)		0.85	(0.78-0.93)	**
65+	1.44	(1.16-1.78)	*	1.23	(1.01-1.51)	*
Parents' combined income relative to FPG						
< 100%	0.07	(0.07-0.08)	**	4.79	(4.45-5.15)	**
100%-200%	0.16	(0.16-0.17)	**	3.20	(2.99-3.41)	**
200%-300%	0.33	(0.32-0.35)	**	1.75	(1.64-1.87)	**
300%-400%	0.58	(0.55-0.61)	**	1.24	(1.15-1.34)	**
>400%	1.00	Reference		1.00	Reference	
Work status of parents						
Any adult working full-time	1.00	Reference		1.00	Reference	
Only part-time adult workers	0.49	(0.46-0.52)	**	1.27	(1.21-1.33)	**
All adults unemployed	0.28	(0.25-0.31)	**	1.50	(1.39-1.62)	**
All adults not in labor force	0.55	(0.49-0.61)	**	1.69	(1.53-1.87)	**
Highest educational attainment of parents						
Less than high school	0.15	(0.14-0.16)	**	0.82	(0.77-0.87)	**
High school graduate	0.33	(0.31-0.34)	**	1.06	(1.01-1.12)	*
Some college	0.53	(0.51-0.56)	**	1.12	(1.07-1.17)	**
College degree or more	1.00	Reference		1.00	Reference	
Total number of children in household						
< 2	1.00	Reference		1.00	Reference	
≥ 3	1.18	(1.14-1.22)	**	1.22	(1.18-1.26)	**
Primary language spoken at home						
English only	1.00	Reference		1.00	Reference	
Not English	0.50	(0.48-0.53)	**	0.88	(0.84-0.92)	**
Urban/Rural						
Not MSA residence	1.00	Reference		1.00	Reference	
MSA residence	1.25	(1.21-1.3)	**	1.04	(1-1.08)	
Survey year						
2008	1.00	Reference		1.00	Reference	
2009	1.16	(1.12-1.2)	**	1.21	(1.17-1.26)	**
2010	1.21	(1.17-1.26)	**	1.43	(1.38-1.48)	**

Models are weighted and adjusted for variables listed. Analysis restricted to children living in states without same-sex marriage, civil unions or domestic partnership policies in place as of January 1, 2008, which includes all states except California, the District of Columbia, Massachusetts, New Jersey and Vermont. RRR indicates relative risk ratio; CI, confidence interval; FPG, federal poverty guidelines.
Source: 2008-2010 American Community Survey.

** $p < .01$

* $p < .05$

Table 4.13 The Association Between Family Type and Children's Health Insurance Coverage in States with Second-Parent Adoption Available Statewide as of January 1, 2008 in Sensitivity Sample

	Private vs. Uninsured			Public vs. Uninsured		
	RRR	95% CI		RRR	95% CI	
Family Type						
Opposite-Sex, Married	1.00	Reference		1.00	Reference	
Opposite-Sex, Unmarried	0.51	(0.47-0.55)	**	1.47	(1.37-1.58)	**
Same-Sex, Dual Fathers	0.54	(0.27-1.09)		1.22	(0.59-2.51)	
Same-Sex, Dual Mothers	0.62	(0.35-1.12)		0.83	(0.47-1.46)	
Age group, years						
< 1	1.00	Reference		1.00	Reference	
1-5	0.75	(0.68-0.81)	**	0.74	(0.67-0.8)	**
6-17	0.61	(0.56-0.67)	**	0.51	(0.47-0.56)	**
Race/Ethnicity						
White	1.00	Reference		1.00	Reference	
Hispanic	0.83	(0.77-0.9)	**	1.11	(1.02-1.21)	*
Black	0.87	(0.77-0.98)	*	1.38	(1.22-1.56)	**
Asian	1.11	(1-1.22)	*	1.44	(1.3-1.61)	**
Multiple/Other	0.89	(0.78-1.02)		1.11	(0.96-1.28)	
Sex						
Male	1.00	Reference		1.00	Reference	
Female	1.00	(0.97-1.03)		1.00	(0.97-1.03)	
Citizenship						
Citizen	1.00	Reference		1.00	Reference	
Naturalized	0.86	(0.74-1.01)		1.04	(0.88-1.23)	
Non-citizen	0.30	(0.28-0.33)	**	0.41	(0.39-0.45)	**
Disability						
No disability	1.00	Reference		1.00	Reference	
Any disability	1.11	(0.99-1.23)		2.08	(1.87-2.32)	**
Relationship to reference person						
Biological son or daughter	1.00	Reference		1.00	Reference	
Adopted son or daughter	0.96	(0.83-1.12)		1.76	(1.5-2.06)	**
Stepson or stepdaughter	0.90	(0.82-0.99)	*	1.03	(0.93-1.13)	
Age of reference person, years						
15-24	0.70	(0.6-0.82)	**	1.48	(1.29-1.7)	**
25-34	0.82	(0.77-0.88)	**	1.21	(1.14-1.29)	**
35-44	1.00	Reference		1.00	Reference	
45-54	1.03	(0.97-1.09)		0.85	(0.8-0.91)	**

55-64	1.02	(0.91-1.14)		0.85	(0.76-0.95)	*
65+	1.07	(0.74-1.54)		1.11	(0.77-1.61)	
Parents' combined income relative to FPG						
< 100%	0.07	(0.07-0.08)	**	4.56	(4.08-5.09)	**
100%-200%	0.16	(0.15-0.17)	**	3.51	(3.18-3.88)	**
200%-300%	0.33	(0.3-0.36)	**	2.28	(2.06-2.52)	**
300%-400%	0.57	(0.52-0.62)	**	1.56	(1.39-1.74)	**
>400%	1.00	Reference		1.00	Reference	
Work status of parents						
Any adult working full-time	1.00	Reference		1.00	Reference	
Only part-time adult workers	0.52	(0.48-0.57)	**	1.20	(1.11-1.29)	**
All adults unemployed	0.31	(0.27-0.36)	**	1.33	(1.19-1.49)	**
All adults not in labor force	0.48	(0.41-0.57)	**	1.40	(1.2-1.62)	**
Highest educational attainment of parents						
Less than high school	0.18	(0.16-0.2)	**	0.76	(0.7-0.84)	**
High school graduate	0.39	(0.36-0.42)	**	1.03	(0.95-1.12)	
Some college	0.59	(0.55-0.63)	**	1.05	(0.97-1.13)	
College degree or more	1.00	Reference		1.00	Reference	
Total number of children in household						
< 2	1.00	Reference		1.00	Reference	
≥ 3	1.18	(1.12-1.24)	**	1.19	(1.13-1.25)	**
Primary language spoken at home						
English only	1.00	Reference		1.00	Reference	
Not English	0.48	(0.45-0.51)	**	1.00	(0.92-1.08)	
Urban/Rural						
Not MSA residence	1.00	Reference		1.00	Reference	
MSA residence	1.74	(1.6-1.89)	**	1.32	(1.2-1.45)	**
Survey year						
2008	1.00	Reference		1.00	Reference	
2009	1.16	(1.09-1.22)	**	1.22	(1.15-1.29)	**
2010	1.16	(1.09-1.23)	**	1.32	(1.25-1.4)	**

Models are weighted and adjusted for variables listed. Analysis restricted to children living in states with second-parent adoption available statewide as of January 1, 2008, which includes California, Colorado, Connecticut, the District of Columbia, Illinois, Indiana, Massachusetts, New York, New Jersey, Pennsylvania and Vermont. RRR indicates relative risk ratio; CI, confidence interval; FPG, federal poverty guidelines. Source: 2008-2010 American Community Survey.

** $p < .01$

* $p < .05$

Table 4.14 The Association Between Family Type and Children's Health Insurance Coverage in States Without Second-Parent Adoption Available Statewide as of January 1, 2008 in Sensitivity Sample

	Private vs. Uninsured			Public vs. Uninsured		
	RRR	95% CI		RRR	95% CI	
Family Type						
Opposite-Sex, Married	1.00	Reference		1.00	Reference	
Opposite-Sex, Unmarried	0.46	(0.43-0.48)	**	1.45	(1.37-1.52)	**
Same-Sex, Dual Fathers	0.30	(0.16-0.55)	**	0.99	(0.59-1.65)	
Same-Sex, Dual Mothers	0.53	(0.37-0.77)	*	1.20	(0.85-1.68)	
Age group, years						
< 1	1.00	Reference		1.00	Reference	
1-5	0.64	(0.6-0.68)	**	0.58	(0.55-0.62)	**
6-17	0.53	(0.5-0.56)	**	0.41	(0.38-0.44)	**
Race/Ethnicity						
White	1.00	Reference		1.00	Reference	
Hispanic	0.59	(0.56-0.62)	**	0.90	(0.85-0.96)	*
Black	0.86	(0.81-0.92)	**	1.38	(1.29-1.48)	**
Asian	1.22	(1.11-1.34)	**	1.26	(1.13-1.41)	**
Multiple/Other	0.71	(0.66-0.77)	**	0.89	(0.83-0.97)	*
Sex						
Male	1.00	Reference		1.00	Reference	
Female	0.99	(0.96-1.01)		0.99	(0.97-1.01)	
Citizenship						
Citizen	1.00	Reference		1.00	Reference	
Naturalized	0.91	(0.8-1.04)		0.75	(0.65-0.87)	**
Non-citizen	0.30	(0.28-0.32)	**	0.19	(0.18-0.21)	**
Disability						
No disability	1.00	Reference		1.00	Reference	
Any disability	1.29	(1.2-1.38)	**	2.65	(2.47-2.84)	**
Relationship to reference person						
Biological son or daughter	1.00	Reference		1.00	Reference	
Adopted son or daughter	0.96	(0.87-1.06)		2.08	(1.87-2.31)	**
Stepson or stepdaughter	0.94	(0.89-1)	*	1.16	(1.09-1.23)	**
Age of reference person, years						
15-24	0.76	(0.69-0.83)	**	1.58	(1.46-1.72)	**
25-34	0.92	(0.88-0.95)	**	1.32	(1.27-1.38)	**
35-44	1.00	Reference		1.00	Reference	
45-54	1.04	(1-1.09)	*	0.85	(0.81-0.9)	**

55-64	0.95	(0.87-1.04)		0.83	(0.75-0.91)	**
65+	1.42	(1.13-1.79)	*	1.26	(1.01-1.56)	*
Parents' combined income relative to FPG						
< 100%	0.07	(0.07-0.08)	**	4.77	(4.39-5.18)	**
100%-200%	0.16	(0.15-0.17)	**	3.06	(2.84-3.29)	**
200%-300%	0.33	(0.31-0.35)	**	1.61	(1.49-1.73)	**
300%-400%	0.57	(0.54-0.61)	**	1.12	(1.03-1.22)	*
>400%	1.00	Reference		1.00	Reference	
Work status of parents						
Any adult working full-time	1.00	Reference		1.00	Reference	
Only part-time adult workers	0.47	(0.44-0.5)	**	1.28	(1.21-1.35)	**
All adults unemployed	0.26	(0.23-0.29)	**	1.52	(1.39-1.66)	**
All adults not in labor force	0.57	(0.5-0.65)	**	1.76	(1.57-1.97)	**
Highest educational attainment of parents						
Less than high school	0.16	(0.14-0.17)	**	0.94	(0.88-1.01)	
High school graduate	0.32	(0.3-0.33)	**	1.09	(1.03-1.16)	**
Some college	0.53	(0.51-0.55)	**	1.16	(1.1-1.22)	**
College degree or more	1.00	Reference		1.00	Reference	
Total number of children in household						
< 2	1.00	Reference		1.00	Reference	
≥ 3	1.20	(1.16-1.25)	**	1.27	(1.22-1.32)	**
Primary language spoken at home						
English only	1.00	Reference		1.00	Reference	
Not English	0.52	(0.49-0.54)	**	0.85	(0.81-0.9)	**
Urban/Rural						
Not MSA residence	1.00	Reference		1.00	Reference	
MSA residence	1.14	(1.1-1.19)	**	0.92	(0.89-0.96)	**
Survey year						
2008	1.00	Reference		1.00	Reference	
2009	1.15	(1.11-1.2)	**	1.18	(1.13-1.23)	**
2010	1.23	(1.19-1.28)	**	1.44	(1.38-1.5)	**

Models are weighted and adjusted for variables listed. Analysis restricted to children living in states without second-parent adoption available statewide as of January 1, 2008, which includes all states except California, Colorado, Connecticut, the District of Columbia, Illinois, Indiana, Massachusetts, New York, New Jersey, Pennsylvania and Vermont. RRR indicates relative risk ratio; CI, confidence interval; FPG, federal poverty guidelines. Source: 2008-2010 American Community Survey.

** $p < .01$

* $p < .05$

5. The Impact of New York's Same-Sex Marriage Law on Health Insurance Coverage Among Adults in Cohabiting Same-Sex Couples

5.1 Introduction

This chapter documents the impact of legalizing same-sex marriage in New York on employer-sponsored health insurance (ESI) coverage for individual adults in cohabiting same-sex couples and same-sex households as separate units of observation. On July 24, 2011, New York began licensing same-sex marriages under the state's Marriage Equality Act, and at least 12,280 marriage licenses were issued to same-sex couples in the 18 months following the implementation of the law (Pew Research Center 2013). Although many LGBT workers in the state were previously able to add same-sex partners to health insurance, this study measures the additional impact of formally legalizing same-sex marriage in New York. Data from the 2008-2012 American Community Survey (ACS) demonstrate that ESI coverage increased among some adults in cohabiting same-sex couples relative to adults in cohabiting opposite-sex couples following the implementation of New York's Marriage Equality Act, making this the first study to measure the impact of a same-sex marriage law rather than a civil union or domestic partnership policy.

This study also adds key policy lessons that tie the three papers together. The short-term health outcomes (described in Figure 1.1) associated with state policies benefitting target populations may be detected immediately and relatively quickly. This study demonstrates that ESI coverage for adults in same-sex relationships may have increased 4-7 percentage points in the year immediately following the implementation of

the Marriage Equality Act. Researchers studying same-sex marriage, among other state policies, may anticipate short-term health outcomes to occur relatively quickly.

Several limitations should be acknowledged prior to making these inferences. First, threats to internal validity common in quasi-experimental studies also present challenges to this chapter. Instrumentation issues, selection bias, omitted variable bias, and historical events may provide alternative explanations for these findings. For instance, the same-sex couples in the ACS suffer measurement problems, as some same-sex couples may actually be married opposite-sex couples misreporting sex on the ACS questionnaire. The technical appendix to this chapter provides one potential solution for addressing this measurement issue. Additionally, same-sex couples measured in the ACS may also be systematically different from same-sex couples not disclosing their relationships or missing in the ACS—and these systematic differences in respondent characteristics may explain the findings presented here. This chapter uses propensity score analyses to match the treatment and comparison group on observable characteristics, but differences in *unobservable* characteristics may remain. This study also lacks omitted variables from the analysis, including health status, risk aversion, firm size of a current employer, and the partner's employment status and access to ESI, all of which are predictors or ESI coverage. Moreover, historical events occurring simultaneously with the treatment policy may explain the results presented here. During the passage of New York's Marriage Equality Act, the economy was recovering and stabilizing following the Great Recession, which may explain changes in ESI in the post-treatment period.

The reader should also be reminded not to over-generalize from this study to other populations and settings, since there are threats to external validity present in this chapter. For instance, this study measures changes in health insurance status for cohabiting same-sex couples, so the reader should not extrapolate to the entire LGBT population or to other same-sex couples who may be missing from this study. Meanwhile, the results presented here may not be found in other settings (e.g. states dissimilar to New York in size and political economic diversity). Future research studies should explore how same-sex marriage laws affect LGBT populations across different settings.

5.2 Background

There are an estimated 726,600 same-sex households in the United States, according to the 2013 American Community Survey (US Census Bureau 2015).[20] Although same-sex couples reside in every state, each state maintains its own set of laws and regulations regarding the legal status of same-sex marriage.[21] At the start of this analysis, thirty-seven states and the District of Columbia authorized legal same-sex marriages (Human Rights Campaign 2015), and the United States Supreme Court was preparing to determine whether same-sex couples in the remaining 13 states were guaranteed the right to legal same-sex marriage.

Differences in state-level same-sex marriage laws affect access to employer-sponsored insurance (ESI) for same-sex couples. When states authorize same-sex

[20] Measurement issues described in the technical appendix make it difficult to estimate an accurate number of same-sex households, but changes to the questionnaire used in the American Community Survey (ACS) and technological improvements in data collection after 2008 suggests improved estimates of same-sex households after 2008 (O'Connell, Lofquist, Simmons and Lugalia 2010).

[21] This study was initiated prior to U.S. Supreme Court case, *Obergefell v. Hodges* (decided on June 26, 2015), guaranteeing the right to same-sex marriage in every state.

marriage, some workplaces offering ESI are required to treat married same-sex couples like married opposite-sex couples (Badgett 2010). Employers that offer *"fully-insured"* health plans through state-licensed insurance companies are regulated under state law and required to cover same-sex spouses after states legalizes same-sex marriage. In contrast, *"self-insured"* employers that manage health benefits in-house and pay for medical claims out of company funds are regulated under the federal Employee Retirement Income Security Act (ERISA) of 1974, and are not subject to state insurance mandates and state same-sex marriage laws. Thus, "self-insured" employers are not required to provide ESI to same-sex spouses (*Roe v. Empire Blue Cross Blue Shield* 2015). Because so many workers are covered by self-insured plans—58% of all workers with ESI were covered by a self-insured plan in 2011 (Crimmel 2013)—state-level same-sex marriage laws can have a limited effect.

Additional federal laws prevent some LGBT workers from adding a same-sex partner to ESI. The federal Defense of Marriage Act (DOMA), signed into law in 1996 and overturned by the U.S. Supreme Court in 2013, created financial barriers for LGBT workers interested in adding a same-sex partner to an ESI plan. Even when states authorized same-sex marriage, Section 3 of DOMA defined marriage as "a legal union between one man and one woman as husband and wife." While the federal government does not tax employer contributions to an opposite-sex spouse's health benefits, under DOMA, a same-sex spouse's health benefits were taxed as if the employer contribution was taxable income. LGBT employees paid $1,069, on average, in federal income taxes when they added a same-sex partner to an ESI plan (Badgett 2007). Given the federal and

state barriers to adding a same-sex partner to ESI, disparities in health insurance were expected.

Unfortunately, most federal surveys measuring health insurance do not ascertain sexual orientation, which makes it difficult to study health insurance in LGBT populations. To overcome data shortages, researchers identify cohabiting same-sex couples in federal surveys when the primary respondent identifies another person of the same sex as a husband, wife or unmarried partner. Prior research using data on cohabiting same-sex couples from the National Health Interview Survey (Heck, Sell, and Gorin 2006; Gonzales, Moltz, and King 2014), the Current Population Survey (Ash and Badgett 2006) and the Behavioral Risk Factor Surveillance System (Buchmueller and Carpenter 2010) found men and women in same-sex couples consistently less likely to have health insurance, especially through employers, compared to their counterparts in opposite-sex couples.

Each of these federal surveys has strengths and limitations in the measurement of same-sex couples. The National Health Interview Survey (NHIS) and the Current Population Survey (CPS) both ascertain the relationship to the householder for every person in the household. Starting with the 2006 NHIS and the 2007 CPS, all household members are allowed to identify someone else in the household as a cohabiting spouse or unmarried partner, which enables the researcher to measure the complete universe of same-sex couples residing in households. The Behavioral Risk Factor Surveillance System (BRFSS), on the other hand, does not collect information from every household member; only one random adult is surveyed in each household. Buchmueller and Carpenter (2010) identified adults in same-sex couples when the randomly sampled adult

reported being "a member of an unmarried couple" and there were exactly two men or exactly two women living in the household. Data collection for sexual minorities is improving, however, as questions related to sexual orientation have been added to the BRFSS in 25 states (The Fenway Institute 2013) and the NHIS. The technical appendix to this chapter further discusses the challenges to using federal census surveys to study same-sex couples and their households over time.

5.3 Previous Research on Civil Unions and Domestic Partnerships

To the best of my knowledge, no studies have measured the causal impacts of same-sex marriage laws on health insurance among adults in same-sex couples. Rather, two previous studies measured the impacts of "*civil unions*" and "*domestic partnership*" laws on health insurance outcomes for lesbian, gay and bisexual (LGB) adults. Using data from the California Health Interview Survey—which includes information on sexual orientation—Buchmueller and Carpenter (2012) found California's domestic partnership law (AB205) associated with a 7.2 percentage point ($p<.001$) increase in health insurance coverage for lesbian women relative to heterosexual women. There were no significant changes in health insurance coverage for gay men. Using data on individual adults in same-sex relationships from the 1996-2011 Current Population Survey, Dillender (2014) found various relationship recognition laws (predominantly civil union and domestic partnership policies) between 1996 and 2011 increased dependent coverage by 6.7 percentage points ($p<0.05$) for women in cohabiting same-sex couples compared to women in cohabiting opposite-sex couples. Again, similar findings were not found among individual men in same-sex relationships.

5.4 New York's Marriage Equality Act of 2011

The purpose of the current study is to measure the impact of New York's Marriage Equality Act (AB A08354) on changes in health insurance coverage for adults in cohabiting same-sex couples. While many states have recently implemented same-sex marriage, I focus on the policy "experiment" in New York because it was the largest state to legalize same-sex marriage without repeal and without previously providing civil unions or domestic partnerships to same-sex couples. Although a prior judicial decision in New York, *Martinez v. County of Monroe* (2008), authorized the recognition of out-of-state same-sex marriage licenses, New York continued to deny same-sex couples the right to marry within the state. On July 24, 2011, New York began licensing same-sex marriages under the state's Marriage Equality Act, and at least 12,280 marriage licenses were issued to same-sex couples in the eighteen months following the implementation of the law (DeSilver 2013). Fully-insured employers were required to cover same-sex partners obtaining a marriage license from the state, but some same-sex couples had to wait until the next open enrollment period to enroll (Bernard 2012). Additionally, because the federal government did not recognize married same-sex couples under DOMA until its repeal in 2013, LGBT workers were required to pay federal income taxes on employer-sponsored insurance for a same-sex partner.

There are limitations to using New York for this study. First, a previous judicial decision in New York (*Martinez v. County of Monroe*) authorized the recognition of out-of-state same-sex marriages beginning in 2008. Between 2008 and 2011, New York was the only state to recognize out-of-state same-sex marriages while denying same-sex couples from obtaining marriage licenses inside New York. Another limitation to

studying New York is its limited generalizability. Very few states are similar in size and economic and cultural diversity as New York, so making generalizations to other states may be problematic. Finally, since there are so few states similar to New York, finding another state to make comparisons may be difficult.

5.5 Conceptual Framework

This study adopts the conceptual framework in Figure 5.1 to analyze the relationship between the passage of New York's same-sex marriage law and employer-sponsored insurance (ESI) coverage among individual adults in same-sex couples or same-sex households. The adoption of same-sex marriage is a function of state characteristics, such as the state's culture, political economy, and attitudes towards LGBT people and same-sex marriage. Adopting same-sex marriage leads to more workplaces offering ESI to same-sex partners. When states legalize same-sex marriage, fully-insured employers are required to offer ESI to same-sex partners of LGBT workers (Badgett 2010), but ESI offers for same-sex partners are also a function of employer characteristics, such as industry of employment, firm size, fully-insured status, whether employers work full-time and the length of employment (or job tenure).

ESI take-up for each individual and household is a function of individual and household characteristics. Taking up ESI is not only contingent on an ESI offer, but explained by Andersen's Behavioral Model (Andersen 2008), which emphasizes the *predisposing*, *enabling* and *need* characteristics for each individual and household. Predisposing demographic characteristics (e.g. age, sex, race/ethnicity and citizenship) are conditions that make certain populations more likely to enroll in health insurance (Andersen and Davidson 2007). Enabling conditions (e.g. education, income, and family

structure) are circumstances that promote or deter health insurance enrollment. Lastly, perceived needs (e.g. health care needs, disability status and risk aversion) may also lead individuals and families to enroll in health insurance.

I use this conceptual framework to inform the specification of my empirical models that measure the impacts of New York's Marriage Equality Act on ESI coverage for individual adults in same-sex couples or same-sex households (Note: this study examines the impact on individual adults and households as separate units of analysis for reasons discussed below). The empirical models, discussed next, make some exceptions to the conceptual framework. I do not include employment-related factors (job tenure, industry, or full-time employment status) in modeling the impact estimates because they are endogenous to the policy change and health insurance status. Some LGBT workers may reduce their working hours or withdraw from the labor force in response to joining a same-sex partner's ESI plan after marrying in the state. Moreover, other factors are unobserved and not measured in the ACS (risk aversion, firm size, self-insured versus fully-insured status) and are not operationalized in this study (subsequent research will study these factors when richer data are collected or become available in other federal surveys).

I hypothesize that ESI coverage will increase among individual adults in same-sex couples and same-sex households in New York following the implementation of the Marriage Equality Act in 2011. However, ESI coverage may remain at similar levels or decline after the legalization of same-sex marriage in New York. First, some LGBT workers may choose not to enroll a same-sex partner into ESI for fear of employment-based discrimination or if they were unable or unwilling to pay the federal income taxes

associated with ESI coverage for same-sex partners (Bernard 2012). Additionally, some companies previously covering same-sex partners on a volunteer basis may require same-sex couples to marry in order to remain covered. Same-sex couples choosing not to marry or unable to marry within the period allotted by their employers may lose their ESI coverage (Appleby 2015; Silverman 2015).

5.6 Data and Methods

5.6.1 Data Source and Study Population

This study uses data from the 2008-2012 American Community Survey (ACS) to measure the impact of New York's Marriage Equality Act on ESI coverage among individual adults in cohabiting same-sex couples and same-sex households. The ACS is a household survey conducted annually by the U.S. Census Bureau and is designed to provide states and communities with timely demographic, economic and housing information. Replacing the decennial census long form questionnaire in 2005, the ACS maintains an annual sample size of about 3 million housing units and a monthly sample size of about 250,000 households. The large samples available in the ACS make it a powerful source for studying relatively small populations, like same-sex households,[22] at the state level (Lofquist 2011).

Like most federal surveys, the ACS does not ascertain sexual orientation. Instead, cohabiting same-sex couples are identified based on relationship information and were assumed to be lesbian, gay and bisexual (LGB) individuals. Adults in cohabiting same-sex couples were identified when the primary respondent (i.e. the householder or household head) identified another cohabiting person of the same sex as a husband, wife,

[22] Same-sex households, same-sex couples and same-sex couple households are used interchangeably.

or unmarried partner (Gates and Steinberger 2009; DeMaio, Bates, and O'Conell 2013). There are some concerns about the measurement of same-sex households in the ACS, and the technical appendix to this chapter discusses those issues in greater detail and conducts sensitivity analyses to test the robustness of the findings presented here. Meanwhile, identification strategies cannot ascertain transgender populations given the binary male-female categories on gender identity in the ACS. In accordance with DOMA, same-sex couples using the "husband/wife" response category were edited as unmarried partners by the Census Bureau regardless of their legal marital status until the 2012 ACS (O'Connell and Gooding 2012). Additionally, this study could not distinguish *legally* married same-sex couples from unmarried same-sex couples in the ACS.

Consistent with previous studies (Buchmueller and Carpenter 2012), the analytic sample was restricted to adults between 26 and 64 years of age to account for the completion of education, Medicare coverage starting at 65 years and provisions under the Affordable Care Act allowing young adults to remain on a parent's health plan until age 26 (O'Hara & Brault 2013). This study also restricted the analysis to adults partnered to another cohabiting adult between 26 and 64 years of age. Separate analyses were conducted at the individual level using person survey weights and at the household level using household survey weights to measure changes in both individual and household-level health insurance outcomes. The "treatment group" included 3,524 adults in cohabiting same-sex couples living in New York (or 1,762 same-sex households in New York). Changes in health insurance coverage were compared to a group unaffected by New York's Marriage Equality Act: 284,872 adults in cohabiting opposite-sex couples also residing in New York (or 142,436 opposite-sex households in New York). Because

legally married and unmarried same-sex couples could not be distinguished in the data, married and unmarried opposite-sex couples were combined in the comparison sample.

5.6.2 Outcome Measures

A question regarding health insurance was added to the ACS in 2008 and requires the primary respondent to report current health insurance status for each member in the household (Davern *et al*. 2009). Because many respondents misreport public health insurance programs in the ACS (Boudreaux, Call, Turner & O'Hara 2015), this study used three health insurance outcomes: ESI coverage, other non-ESI coverage and uninsured. A person reporting both ESI coverage and public health insurance coverage was assigned to ESI. Unfortunately, the specific source of ESI coverage—or whether a person with ESI was the primary policy holder or a dependent on another person's ESI plan—was not measured in the ACS. Meanwhile, to determine whether New York's Marriage Equality Act affected family coverage in same-sex households, this study relied on couple-based health insurance outcomes: both members of a couple were insured; and both members of a couple were insured by ESI. The couple-based measure of ESI potentially captures take-up of dependent coverage for same-sex couples assuming that same-sex couples enroll in ESI together after the Marriage Equality Act.

5.6.3 Statistical Analysis

Descriptive statistics were first used to describe the treatment and comparison groups. Next, trends in ESI were used to assess opposite-sex couples as a reasonable comparison group (a discussion of counterfactuals is included in the technical appendix). Then, a quasi-experimental difference-in-differences approach was used to compare the treatment group (adults in cohabiting same-sex couples) to the comparison group (adults

in cohabiting opposite-sex couples). The following linear probability model was estimated to measure the differential impact of legalizing same-sex marriage on changes in health insurance for the treatment group relative to the comparison group:

$$Y_i = \alpha + \beta_1 TREAT_i + \beta_2 POST_i + \beta_3 TREAT_i \times POST_i + \beta_4 X_i + \varepsilon$$

where Y_i represents a dichotomous variable for each health insurance outcome (ESI, other coverage, uninsured) for person *i*. *TREAT* was an indicator variable equal to 1 for the treatment group (adults in cohabiting same-sex couples residing in New York) and 0 for the comparison group (adults in cohabiting opposite-sex couples residing in New York). *POST* was an indicator variable equal to 1 for observations in 2012, which allowed a 6-month lag in implementation that coincided with fall enrollment periods. *POST* was equal to 0 for observations in 2008-2011.[23] *X* was the vector of control variables that included age group (25-34, 35-44, 45-54, 55-64), race and ethnicity (White, Black, Hispanic, Asian, and other/multiple races), educational attainment (less than high school, high school, some college, Bachelor's degree, and graduate degree), the couple's combined income in dollars (0-34999; 35000-49999; 50000-74999; 75000-99999; 100000-149999; and >150000), citizenship (citizen, naturalized and non-citizen), disability status,[24] the presence of a child under 18 years of age in the household, the presence of a person older than 65 years of age, residence in a Metropolitan Statistical Area (MSA) and

[23] Data from 2013 was not included in this study, as the Supreme Court ruled portions of the federal Defense of Marriage Act unconstitutional—making it easier for LGB workers to add a same-sex partner to ESI. Additionally, changes to the 2013 ACS may disrupt the time series of self-reporting a same-sex relationship over time (a more detailed discussion on this issue is included in the technical appendix to this chapter).

[24] Disability status was defined as having difficulties with at least one of the following: (1) concentrating, remembering or making decisions because of physical, mental or emotional condition; (2) walking or climbing stairs; (3) dressing or bathing; (4) doing errands such as visiting a doctor's office or shopping.

homeownership (owned free and clear, owned with mortgage or loan, rented or occupied without rent).

This study also used propensity score weights to ensure that the comparison group matched the treatment group on observable characteristics. Propensity scores were estimated separately for each sex and comparison group using logistic regression and Stata's *psmatch2* to model the propensity of being part of the treatment group (versus the comparison group) based on age group, race/ethnicity, educational attainment, the couple's combined income, citizenship status, disability status, the presence of a child under 18 years of age in the household, the presence of a person older than 65 years of age in the household, residence in a MSA and homeownership. Following guidance from DuGoff, Schuler & Stuart (2014), propensity scores were estimated using the unweighted sample and logistic regression, and each logistic regression model included the individual's survey weight as a covariate.[25] After estimating propensity scores, the survey weights for the comparison group were adjusted and "weighted by the odds" of the propensity score, or weighted by $e(1 - e)$, where e is the propensity score (DuGoff, Schuler & Stuart 2014).

After conducting individual-level analyses, separate models were estimated on household-level outcomes (both members insured; both members insured by ESI) using household weights and the sample of household heads. This study estimated similar linear probability models to the equation above, but covariates controlled for household characteristics. The vector or household covariates, X, included the age of the oldest

[25] Dugoff, Schuler & Stuart (2014) recommends using the survey weight as a predictor in the propensity score model because survey weights capture relevant information that may be missing from public use files, such as where individuals live, their demographic characteristics, and their probability of responding to the survey.

member in the couple (25-34, 35-44, 45-54, 55-64), race and ethnicity (both white, one white, both non-white), the couple's highest educational attainment (less than high school, high school, some college, Bachelor's degree, and graduate degree), the couple's combined income in dollars (0-34999; 35000-49999; 50000-74999; 75000-99999; 100000-149999; and >150000), a dummy variable for whether any member in the couple was a non-citizen, a dummy variable for whether any member in the couple was disabled, whether there were any children in the household, whether there were any older adults (≥65 years) in the household, residence in a Metropolitan Statistical Area (MSA) and homeownership (owned free and clear, owned with mortgage or loan, rented or occupied without rent).

The coefficient of interest in each of the linear probability models, β_3, represents the relative effect of the Marriage Equality Act on each individual- or household-level health insurance outcome for the treatment group compared to the comparison group. The assumption underlying this analytic approach is that the trends over time for the control group provide the counterfactual for what would have happened in the absence of the Marriage Equality Act. All models were conducted separately for men and women, first comparing adults in cohabiting same-sex couples to adults in cohabiting opposite-sex couples and then comparing same-sex households to opposite-sex households.

Sensitivity analyses considered a synthetic control group and falsification tests assigning artificial treatment to adults in same-sex couples residing in states never adopting same-sex marriage. All analyses were conducted in Stata using survey weights (person weights for individual-level analyses and household weights for household-level analyses) and the *svy* command to reflect the complex survey design of the ACS. Because

cohabiting partners of the same household are likely to share similar characteristics, their health insurance outcomes may be correlated. To address this correlation, all standard errors were clustered at the household level. Abbreviated tables are presented here with complete regression tables included as an appendix to this chapter.

5.7 Results

5.7.1 Descriptive Statistics

Table 5.1 presents descriptive characteristics of cohabiting adults in New York by sex and relationship type. Men and women in cohabiting same-sex couples exhibited characteristics that informed predictions of their access to ESI. Both men and women in same-sex couples were younger, less racially and ethnically diverse and reported higher levels of education and income relative to their peers in opposite-sex couples. For instance, approximately 75% of men and women in same-sex couples were white compared to 68% of men and women in opposite-sex couples. Additionally, 65% of men in same-sex couples had a college degree compared to 37% of men in opposite-sex couples. Over half (60%) of women in same-sex couples received a college degree while fewer than half (40%) of women in opposite-sex couples received a college degree. Finally, approximately 64% and 50% of men and women in same-sex couples, respectively, were part of a couple earning more than $100,000 in income, which was substantially higher than 40% of adults in opposite-sex couples.

Adults in cohabiting same-sex couples were also less likely to have a child or an elderly adult in the household. Only 12.9% of men in same-sex couples and 29% of women in same-sex couples had a child less than 18 years of age living in the household, whereas 55% of men and women in opposite-sex couples had a child living in the

household. Having an older adult living in the household was also more common for adults in opposite-sex couples: 3.3% of nonelderly men and women in opposite-sex couples were living with an older person over 65 years of age, whereas only 1.6% of men and 2.4% of women in same-sex couples were living with an older adult. Finally, adults in same-sex couples were much more likely to reside in a Metropolitan Statistical Area (MSA), particularly around the New York City area.

After reweighting the comparison group of men and women in cohabiting opposite-sex couples with propensity score weights, the characteristics of the comparison groups aligned to match the treatment group on observable characteristics (also presented in Table 5.1). Meanwhile, the high socioeconomic measures at the individual-level for men and women in cohabiting same-sex couples translated to high socioeconomic measures at the household-level. Descriptive statistics of same-sex and opposite-sex households are presented in Table 5.2. Both male and female same-sex households reported higher levels of income and education; they were more likely to living in the New York City MSA; and they were less likely to be non-white households.

5.7.2 The Effects of New York's Marriage Equality Act on Health Insurance Outcomes

Figure 5.2 demonstrates that both the treatment and comparison groups shared relatively parallel trends in ESI coverage until the implementation of same-sex marriage in 2011. ESI coverage for men in same-sex couples (Figure 5.2, Panel A) declined from 80% in 2008 to 75% in 2011, and then ESI coverage increased to 85% the year immediately following the legalization of same-sex marriage in New York. Meanwhile, ESI coverage steadily declined to74% for men in opposite-sex couples. Similarly, women

in same-sex and opposite-sex couples shared similar trends in ESI coverage (Figure 5.2, Panel B). ESI coverage declined for women in same-sex couples from 79% in 2008 to 78% in 2011. Then, ESI coverage increased to 84% in 2012 for women in same-sex couples while ESI coverage continued to decline to 75% for women in opposite-sex couples.

Table 5.3 presents changes in health insurance coverage after the implementation of New York's Marriage Equality Act in 2011. The regression adjusted difference-in-differences estimates indicate that the passage of the Marriage Equality Act was associated with a 4.4 ($p<0.10$) to 5.1 ($p<0.05$) percentage point increase in ESI for men in same-sex couples and a 5.6 to 7.0 percentage point ($p<0.05$) increase in ESI for women in same-sex couples relative to the comparison group of adults in opposite-sex couples (after controlling for demographic and socioeconomic characteristics). Legalizing same-sex marriage was also associated with marginally significant declines in other coverage options (4 to 4.6 percentage points; $p<0.10$) for women in same-sex couples. Only in models using propensity score weighting did other types of insurance coverage decline for men in same-sex couples (4.2 percentage points; $p<0.05$). Men and women in same-sex couples also experienced reductions in uninsurance, but these reductions in uninsurance were not statistically significant.

Figure 5.3 presents the trends in both members having ESI for the treatment and comparison households. The percentage of both members with ESI in opposite-sex households declined over time, from approximately 73% in 2008 to 70% in 2012. Meanwhile, the percentage of same-sex households where both men had ESI declined rapidly until the passage of the Marriage Equality Act in 2011. The percentage of both

men in same-sex households with ESI was lowest in 2010 at 61%, which was significantly lower than the trend found in opposite-sex households. Meanwhile, female same-sex households shared similar trends in dual ESI coverage relative to opposite-sex households over time, but the percentage of female same-sex households with dual ESI coverage slightly increased to 74% in 2012, up from 70% in 2011.

Table 5.4 presents the changes in couple-based health insurance outcomes for same-sex and opposite-sex households after the implementation of the Marriage Equality Act. After controlling for household-level characteristics, the adjusted difference-in-differences estimates suggest that the Marriage Equality Act was associated with a marginally significant increase (7.2 percentage points; $p<0.10$) in the percentage of both men in same-sex households with ESI, but given the non-parallel trends in ESI between the treatment and comparison group prior to the Marriage Equality Act, these findings may not be reliable. Meanwhile, the Marriage Equality Act was associated with increases in ESI for female same-sex households, but these findings were not statistically significant (3.3-4.6 percentage points; $p>0.10$).

5.8 Sensitivity Analyses

This study conducted a series of sensitivity and robustness checks to explore the consistency of the results. The findings presented here were robust to synthetic control groups and falsification tests assigning artificial treatment to states never receiving the actual treatment. The accompanying technical appendix also conducts sensitivity tests to address instrumentation issues in measuring same-sex households in the ACS.

5.8.1 Synthetic Control Group

Finding a reasonable comparison state for New York is difficult to accomplish given the state's size and socioeconomic diversity. Recent advancements in comparative case studies allow me to create "synthetic control groups" that predict health insurance outcomes in the absence of the treatment policy (Abadie, Diamond & Hainmueller 2010; 2014). Instead of relying on a single comparison state, synthetic control groups average the pre-treatment aggregate trend for each outcome based on a weighted sample of representative states, and then it uses this information to predict what would happen in a "synthetic New York" had the state never passed the Marriage Equality Act.

To create synthetic New York, I first created a panel data set of state-level measures averaging demographic and socioeconomic characteristics of men and women (separately) in cohabiting same-sex couples in New York and the 27 largest states[26] never legalizing or amending their same-sex marriage laws. Then, I implemented the synthetic control method in Stata using the "*synth*" family of commands developed by Abadie *et al.* (2010). I supplemented demographic and socioeconomic data with annual data associated with state-level ESI rates (union representation rates) [Shen & Zuckerman 2003], the likelihood of legalizing state-level same-sex marriage (measured by the percent of state residents supporting same-sex marriage in 2008), and the potential for same-sex marriage laws to affect fully-insured employers (the percent of private employees covered by fully-insured health plans).

[26]AL, AZ, AR, CO, FL, GA, IN, KS, KY, LA, ME, MD, MI, MN, MS, MO, NM, NC, OH, OK, PA, SC, TN, TX, UT, VA, WV. The 2008-2012 ACS sample size of men and women in same-sex relationships was greater than 100 in these states.

Figure 5.4 compares the trends in ESI coverage for actual New York and synthetic New York separately for men and women. Had the Marriage Equality Act not been implemented in 2011—as represented by synthetic New York—ESI coverage would have increased slightly for men in same-sex couples and decreased for women in same-sex relationships. Instead, men in same-sex couples in *actual* New York experienced a 7 percentage point increase in ESI coverage, and women in same-sex couples in *actual* New York experienced an 11 percentage point increase in ESI compared to synthetic New York. Table 5.5 reports the state weights used to construct synthetic New York. Pennsylvania contributed the most information to construct the synthetic sample of men in same-sex couples; other states included Maryland and Minnesota. Meanwhile, the synthetic sample of women in same-sex couples relied on information from Virginia, Maryland, New Mexico and Pennsylvania. Because Medicaid programs vary dramatically in terms of eligibility across these 27 states, I do not repeat this analysis for other health insurance outcomes.

5.8.2 Falsification Tests

In a final sensitivity test, I applied artificial treatment—or placebo tests—to adults in same-sex relationships living in all 34 states banning and never legalizing civil unions, domestic partnerships or same-sex marriage prior to or during the study period. In other words, I applied the same linear probability model used in this analysis to the adults in cohabiting same-sex couples living in the 34 states never legalizing same-sex marriage (with state fixed effects added). Health insurance outcomes were compared to adults in opposite-sex couples living in the same states. Any increases in ESI coverage in this falsification (or placebo) test would mean that the gains in ESI found in New York were

associated with secular trends in ESI offers for same-sex couples, confounding factors or noise in the data rather than the passage of the Marriage Equality Act itself. However, results from the placebo tests provide additional support for the main findings. Null findings were found in each falsification test. There were no statistically significant increases in ESI coverage for adults in cohabiting same-sex couples relative to adults in cohabiting opposite-sex couples in the non-treatment states (Table 5.6).

5.9 Discussion

Previous research found laws establishing civil unions or domestic partnerships for same-sex couples associated with gains (6-7 percentage points) in health insurance for lesbian women (Buchmueller & Carpenter 2012) and cohabiting women in same-sex couples (Dillender 2014). This study is the first to demonstrate that New York's same-sex marriage law (called the Marriage Equality Act) increased ESI coverage by 4-7 percentage points for New York men and women in cohabiting same-sex couples compared to New York men and women in cohabiting opposite-sex couples. The gains in ESI presented in this study were similar in direction and magnitude to previous studies on civil unions and domestic partnership laws. Additionally, the Marriage Equality Act was potentially associated with small declines in other sources of coverage for men and women in cohabiting same-sex couples compared to adults in cohabiting opposite-sex couples.

Gains in ESI were found in sensitivity analyses when comparing actual New York to a synthetic New York, which was constructed based on the weighted average of different states best representing New York prior to the Marriage Equality Act. Falsification tests also did not find increases in states never implementing the treatment

policy when comparing adults in same-sex couples to adults in opposite-sex couples, which suggests that the gains in ESI coverage in 2012 were unique to New York.

Future research should continue to investigate whether and how same-sex marriage laws shape health outcomes and confer health benefits to cohabiting same-sex couples and other LGBT adults. For instance, health services researchers should continue to examine whether same-sex marriage laws reduce provider discrimination and financial barriers to medical care. Other research should study whether entering a same-sex marriage improves health behaviors similar to the reductions in smoking and heavy drinking commonly found in opposite-sex marriages (Wood, Goesling, and Avella 2007). Another interesting direction in health services research could examine whether same-sex couples assist each other with receiving preventive medical services, including recommended cancer screenings, behavioral health screenings and immunizations. In summary, this area of research should move beyond health insurance coverage and explore other measures of access to medical care and health services utilization.

5.9.1 Limitations

There were several limitations to using data from the ACS for this study. Foremost, demographers are concerned with data quality and instrumentation issues when using relationship information to identify same-sex couples. Misreporting gender among opposite-sex couples, although uncommon, unintentionally includes heterosexuals as false positives among same-sex couples (Gates and Steinberger 2009; DeMaio, Bates, and O'Conell 2013). The technical appendix to this chapter discusses in greater detail the contamination issues in the ACS and sensitivity analyses addressing these issues. Additionally, data on same-sex couples in the ACS are limited to the primary

householder and the householder's partner (husband, wife or unmarried partner). This study is missing same-sex couples unrelated to the primary respondent and same-sex couples choosing not to disclose their relationship or using other relationship responses, such as roommates or unrelated adults. Excluding this group from the analysis may lead to selection bias among the sample of same-sex couples disclosing their relationships in the ACS, as they report relatively high socioeconomic measures. This study used propensity score weighting methods to match the treatment and comparison sample on observable characteristics, but differences may remain among unobservable factors between the treatment and comparison groups.

This study would have benefited from additional information and omitted variables missing in the ACS. For example, the method used to identify same-sex couples does not validate the sexual orientation of the sample. Although I assumed that people in same-sex couples were lesbian, gay or bisexual (LGB) adults, bisexual adults were missing from the analysis if they were in an opposite-sex couple during the survey period. Knowing sexual orientation would have also facilitated a comparison to single LGB adults. Specifically, knowing sexual orientation would have allowed me to rule out whether the Marriage Equality Act increased partnership and cohabitation among LGB adults, which raises major endogeneity issues for this study. In other words, gains in ESI found in the treatment group may be an artifact of more same-sex couples with different demographic and socioeconomic characteristics to partner and report their relationship in the post-treatment period. Indeed, sample sizes for adults in the treatment group were higher in 2008 and 2012 compared to the intermediate years of the study period (see the

technical appendix). This may bias the results upward to the extent that this pattern was associated with the Marriage Equality Act in New York.

Additionally, historical events occurring simultaneously during the study period created additional challenges and burdens for this project. Many aspects of society were rapidly changing during the study period, which may affect health insurance outcomes and selection into the treatment group. For example, this study overlaps with the 2007-2009 economic recession, which represents a period when approximately 5 million Americans lost employer-sponsored health insurance due to unemployment and declining incomes (Holahan 2011). However, trends in ESI declined similarly for both the treatment and comparison groups prior to the implementation of the Marriage Equality Act. Additionally, attitudes rapidly shifted in support of LGBT people and same-sex marriage between 2008 and 2012. In May 2008, only 40% of Americans believed that marriages between same-sex couples should be valid with the same rights as traditional marriages (Gallup 2015), and only Massachusetts licensed same-sex marriages (Connecticut and California would issue same-sex marriages later in the year). By November 2012, 53% of Americans supported same-sex marriage (Gallup 2015), and 8 states would legalize same-sex marriage by the end of the year. This rapid shift in opinion and attitudes on same-sex marriage may have led more and different types of same-sex couples to report their relationship over time—which may also bias towards finding a positive impact in this paper.

This study also uses a single post-treatment year to study the effects of the Marriage Equality Act on changes in health insurance coverage. A stronger difference-in-differences framework requires multiple years in the follow-up period, but changes in the

2013 ACS and federal policy prevented me from using data from the 2013. First of all, married same-sex couples using the "husband/wife" response category were maintained in the 2013 ACS, and cohabiting couples with incomplete responses to sex or relationship were imputed as same-sex couples based on the likelihood of their first names being a common male or female first name (Lofquist 2015). Moreover, in June 2013, the U.S. Supreme Court ruled portions of the Defense of Marriage Act (DOMA) defining marriage between one man and one woman unconstitutional in *United States v. Windsor*. Subsequently, same-sex couples had extra incentives to get married since the federal government recognized their unions. Indeed, administrative data on same-sex marriages in Connecticut, New Hampshire, and Vermont suggests that nearly twice as many same-sex couples married in 2013 than in 2012 (Badgett & Mallory 2014). The *Windsor* decision may have led more same-sex couples to get married, cohabitate and report their relationship in the ACS, which would have caused more composition problems in the years following the 2012 ACS.

In addition to these threats to internal validity present in quasi-experimental designs with observational data, this study acknowledges threats to external validity. Readers should be reminded not to generalize and extrapolate the findings in this study to other populations and settings. This study examines the impact of New York's Marriage Equality Act on adults in cohabiting same-sex couples in the ACS who are either the primary householder or the householder's partner. Thus, these results should not be extrapolated to all same-sex couples—especially those who are not cohabitating—or the entire LGBT population in New York. The reader should also take caution to extrapolate

the findings in this study to other settings, particularly in states that are dissimilar to New York in social, political and/or economic contexts.

5.10 Conclusion

With respect to the boundaries of these limitations, this study leveraged large samples in the ACS to document the potential impact of New York's same-sex marriage law on ESI coverage among New York adults in cohabiting same-sex couples. This study found the Marriage Equality Act was associated with increased ESI coverage among men and women in cohabiting same-sex couples, making marriage equality a potentially imperative health policy issue and part of the public policy goal of expanding access to health care through employer health plans. Therefore, the health benefits to same-sex marriage—including expanded access to ESI—should be considered in ongoing policy discussions and health services research.

Figure 5.1 Conceptual Framework

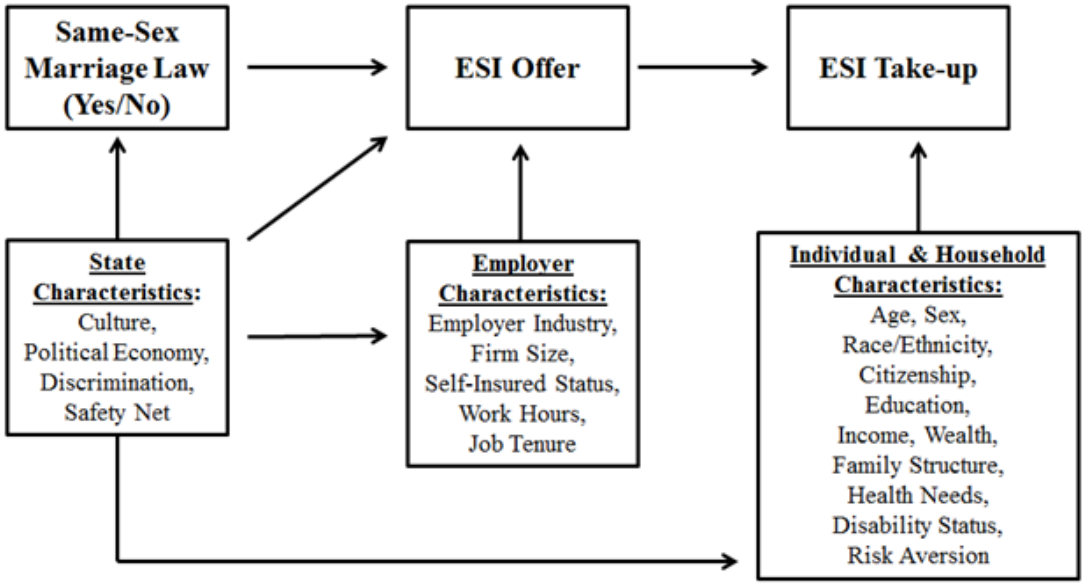
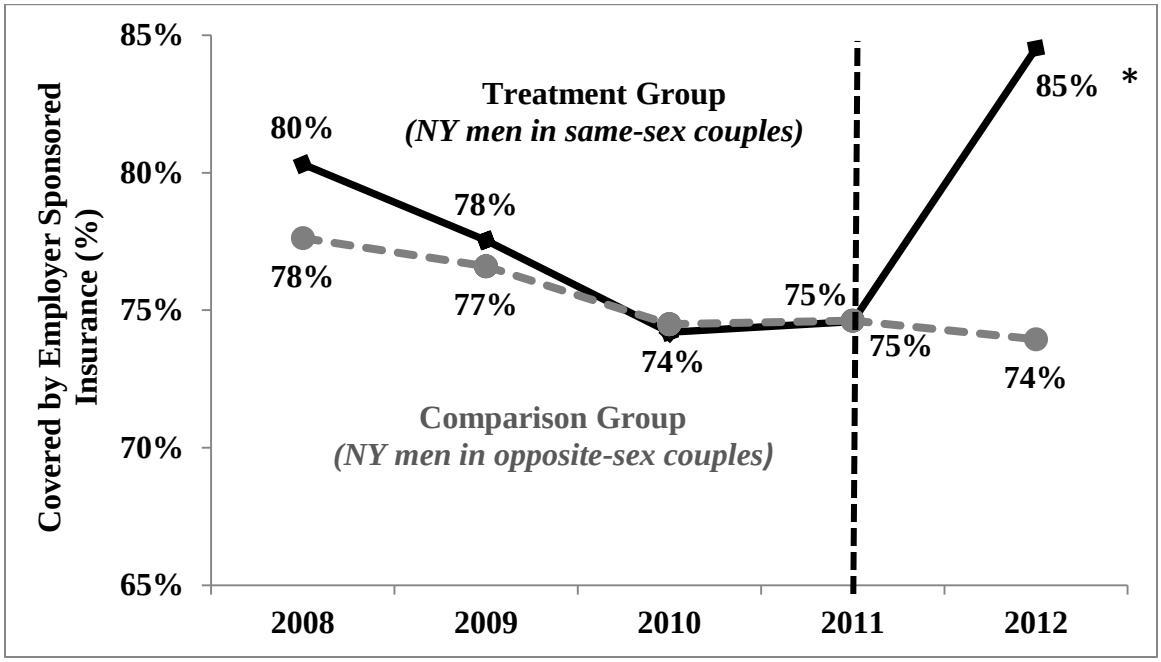
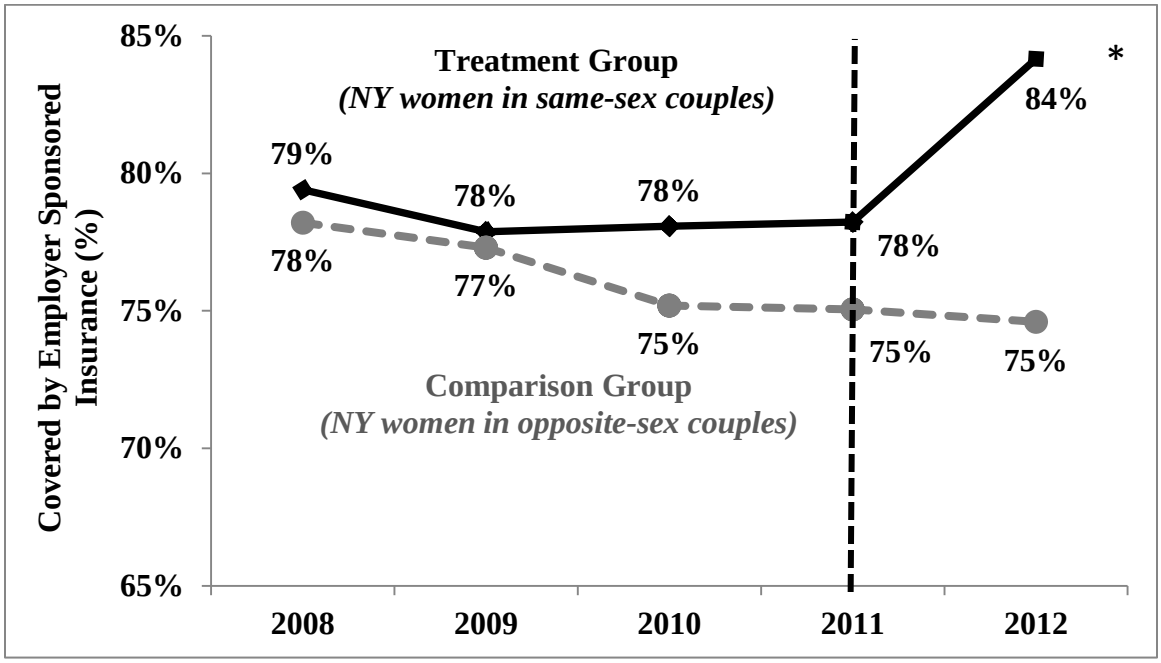


Figure 5.2 Percent Covered by Employer-Sponsored Insurance (ESI) Before and After New York's Marriage Equality Act, by Sex

A. Men



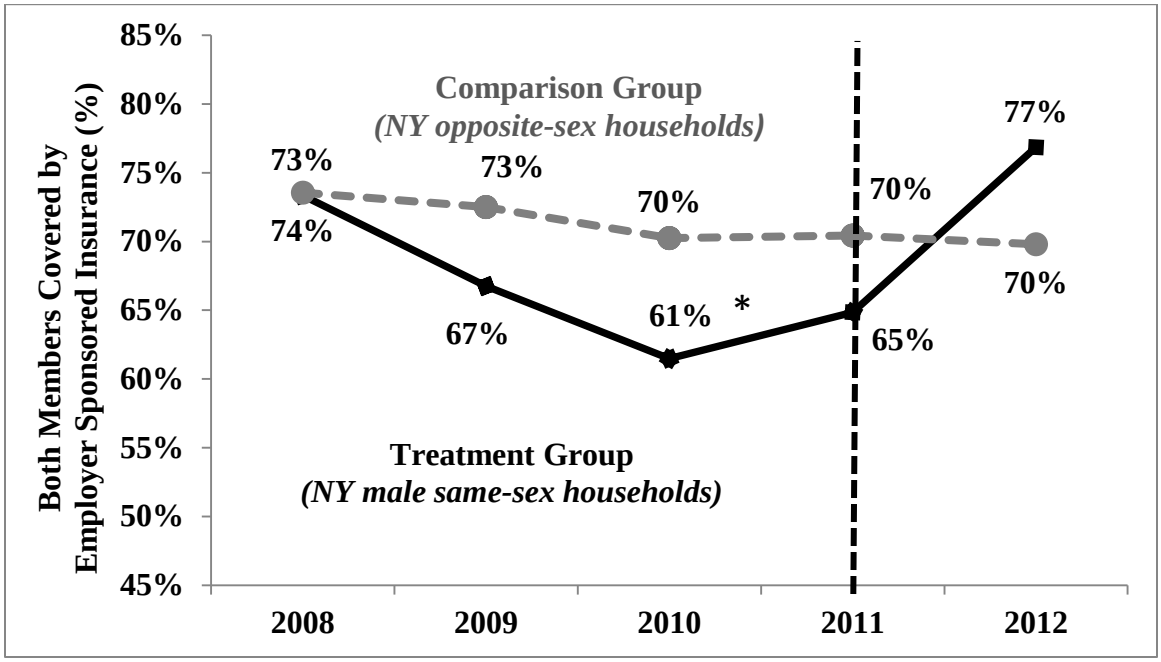
B. Women



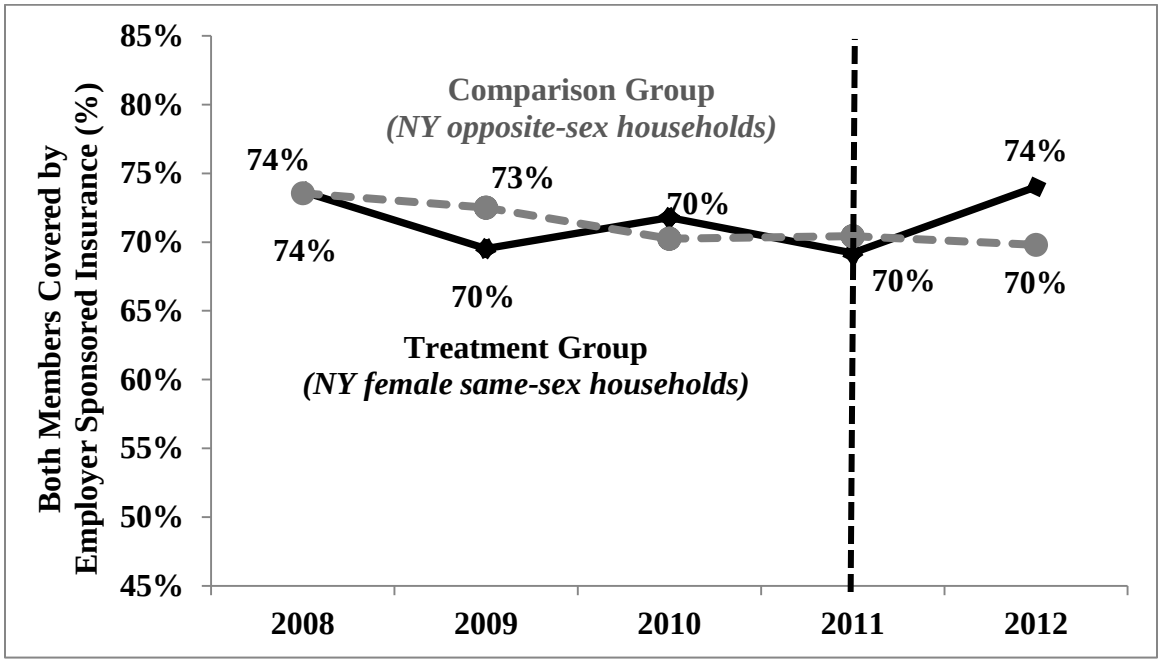
Data are from an analysis of the 2008-2012 American Community Survey. The vertical line represents the year during which the Marriage Equality Act was implemented in New York. The reported percentage in employer-sponsored insurance (ESI) reflects post-stratification weighting and have not been adjusted for covariates. * indicates that estimates between the treatment group and comparison group are significantly different ($p<0.05$) in the same year; otherwise estimates are statistically similar.

Figure 5.3 Percent Both Members Covered by ESI Before and After New York's Marriage Equality Act, by Sex

A. Men



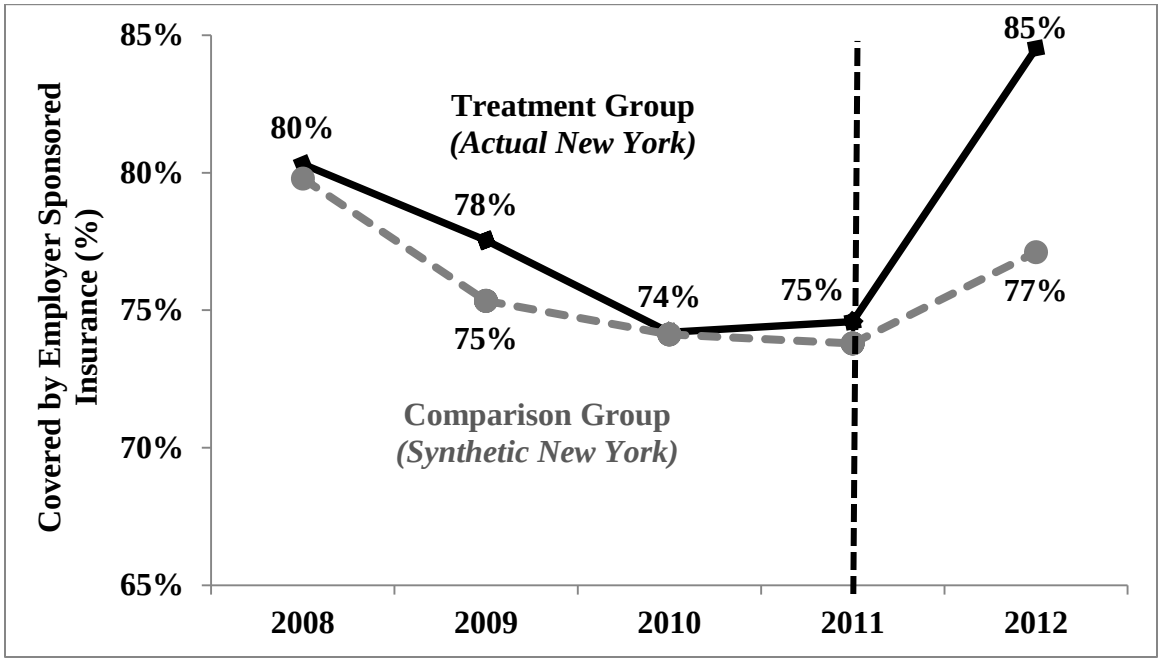
B. Women



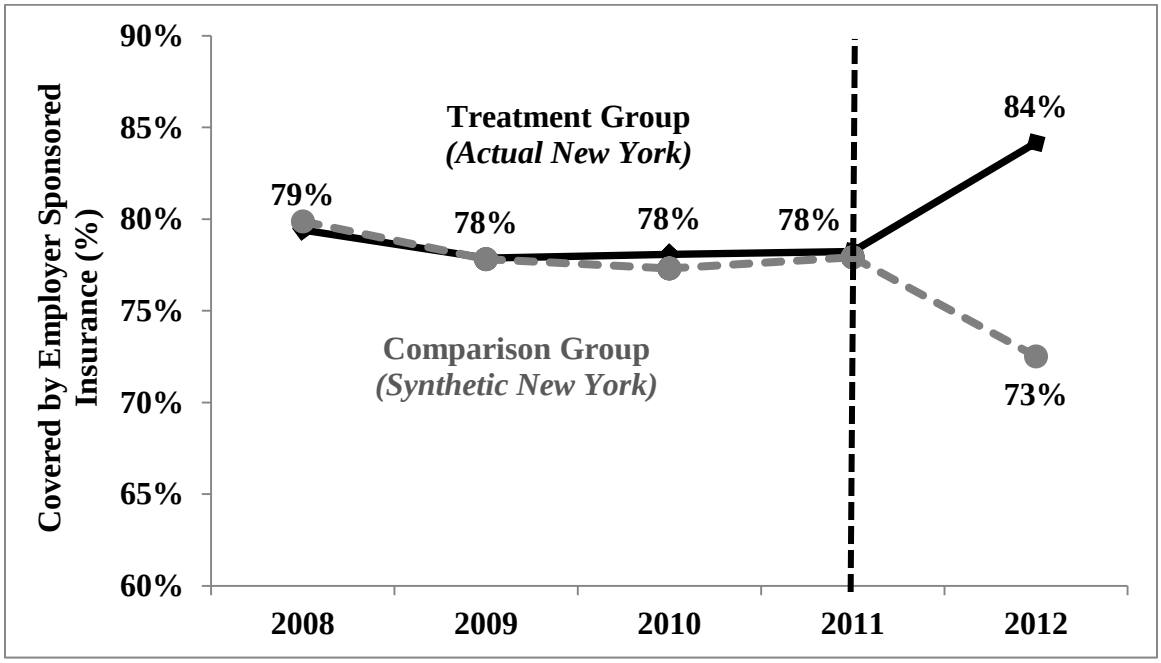
Data are from an analysis of the 2008-2012 American Community Survey. The vertical line represents the year during which the Marriage Equality Act was implemented in New York. The reported percentage of both members covered by employer-sponsored insurance (ESI) reflects post-stratification weighting and have not been adjusted for covariates. * indicates that estimates between the treatment group and comparison group are significantly different ($p<0.05$) in the same year; otherwise no significant difference.

Figure 5.4 Trends in ESI Comparing the Treatment Group to the Synthetic Control Group, by Sex

A. Men



B. Women



Data are from an analysis of the 2008-2012 American Community Survey. The vertical line represents the year during which the Marriage Equality Act was implemented in New York. The reported percentage of both members covered by employer-sponsored insurance (ESI) reflects post-stratification weighting and have not been adjusted for covariates.

Table 5.1 Descriptive Characteristics of Cohabiting Adults in New York, by Sex and Relationship Type

	Men			Women		
	Treatment Group	**Comparison Group**		**Treatment Group**	**Comparison Group**	
	NY Adults in Same-Sex Couples	NY Adults in Opposite-Sex Couples without Propensity Score Weighting	NY Adults in Opposite-Sex Couples with Propensity Score Weighting	NY Adults in Same-Sex Couples	NY Adults in Opposite-Sex Couples without Propensity Score Weighting	NY Adults in Opposite-Sex Couples with Propensity Score Weighting
Sample Size	1,842	142,436	142,436	1,682	142,436	142,436
Age (years)						
26-34	18.8	14.3	18.8	19.8	19.7	20.9
35-44	32.4	27.7	34.0	29.4	29.7	30.3
45-54	34.5	32.2	32.8	33.8	31.8	32.6
55-64	14.2	25.8	14.4	16.9	18.7	16.3
Race/Ethnicity						
White	75.3	68.0	72.1	75.7	68.3	74.1
Black	5.3	9.0	6.2	7.7	8.1	8.4
Asian	5.0	8.2	5.4	3.1	8.9	3.8
Other/multiple races	1.4	1.6	1.6	2.7	1.5	2.2
Hispanic	13.1	13.2	14.8	10.7	13.2	11.6
Couple's Combined Income						
0-34,999	7.6	15.2	8.8	10.6	15.0	10.9
35,000-49,999	4.7	10.3	5.7	6.7	10.2	7.5
50,000-74,999	12.7	18.6	13.8	15.4	18.6	15.8
75,000-99,999	10.6	16.3	10.7	16.7	16.4	16.7
100,000-149,999	23.5	20.5	21.9	25.1	20.6	24.2

>150,000	41.0	19.1	39.2	25.5	19.3	25.0
Education						
Less than high school	4.0	10.8	4.7	4.1	9.0	4.3
High school degree or GED	10.9	25.9	11.0	11.7	23.7	11.8
Some college or vocational	19.8	25.8	21.1	24.0	27.0	23.9
Bachelor's Degree	33.0	21.0	32.2	26.9	21.7	26.6
Graduate Degree	32.4	16.4	31.0	33.3	18.6	33.3
Citizenship						
Citizen	82.4	71.4	79.8	87.7	71.4	86.3
Naturalized	7.6	16.1	8.8	7.5	15.8	8.0
Non-citizen	10.1	12.5	11.4	4.8	12.8	5.7
Children under 18 years	12.9	55.0	12.1	29.2	54.8	29.8
Adults over 65 years	1.6	3.3	1.7	2.4	3.3	2.6
Disabled	4.1	4.8	4.3	7.4	4.7	7.5
Residence in MSA						
New York City MSA	78.0	64.5	77.6	61.7	64.1	62.4
Other MSA	17.9	27.1	18.6	30.2	27.5	30.0
Non-MSA	4.1	8.3	3.8	8.1	8.4	7.5
Homeownership						
Owned free and clear	51.5	56.6	48.9	56.2	56.9	54.1
Owned with mortgage	8.3	13.0	8.2	11.3	13.1	10.0
Renting or residing without rent	40.3	30.4	43.0	32.5	30.0	36.0

Note: GED = general equivalency diploma. MSA = Metropolitan Statistical Area. Weighted percentages are for adults aged 26 to 64 years.

Table 5.2 Descriptive Characteristics of Same-Sex and Opposite-Sex Households in New York, by Sex and Relationship Type

	Men			Women		
	Treatment Group	Comparison Group		Treatment Group	Comparison Group	
	NY Same-Sex Households	NY Opposite-Sex Households without Propensity Score Weighting	NY Opposite-Sex Households with Propensity Score Weighting	NY Same-Sex Households	NY Adults in Opposite-Sex Relationships without Propensity Score Weighting	NY Adults in Opposite-Sex Relationships with Propensity Score Weighting
Sample Size	921	142,436	142,436	841	142,436	142,436
Oldest Age in Couple (years)						
26-34	11.1	12.3	10.6	13.8	12.3	14.4
35-44	27.6	26.7	29.8	24.9	26.7	27.0
45-54	40.0	32.7	38.0	36.1	32.7	34.9
55-64	21.4	28.3	21.5	25.2	28.3	23.7
Couple's Race						
Both white	64.5	64.5	62.2	69.5	64.5	67.8
One non-white	21.8	7.5	22.4	12.6	7.5	13.3
Both non-white	13.7	28.1	15.4	17.9	28.1	18.9
Couple's Combined Income						
0-34,999	7.6	15.1	8.5	10.6	15.1	10.8
35,000-49,999	4.9	10.2	5.5	6.8	10.2	7.5
50,000-74,999	12.8	18.6	13.6	15.4	18.6	15.7
75,000-99,999	10.6	16.4	10.6	16.4	16.4	16.7
100,000-149,999	23.3	20.5	21.9	25.3	20.5	24.2
>150,000	40.8	19.2	39.8	25.5	19.2	25.0
Couple's Highest Educational Attainment						

Less than high school	1.7	5.2	2.2	1.6	5.2	1.4
High school degree or GED	5.1	16.9	5.3	5.5	16.9	5.5
Some college or vocational	14.6	27.2	14.7	18.7	27.2	19.8
Bachelor's Degree	30.2	24.0	31.3	27.2	24.0	25.9
Graduate Degree	48.4	26.7	46.5	47.0	26.7	47.4
Either Member Non-Citizen	15.9	17.4	17.1	7.8	17.4	9.2
Children under 18 years	12.8	54.9	12.0	29.0	54.9	29.6
Adults over 65 years	1.6	3.3	1.7	2.4	3.3	2.6
Either Member Disabled	7.3	8.4	7.8	11.6	8.4	12.1
Residence in MSA						
New York City MSA	77.8	64.3	77.4	61.6	64.3	62.2
Other MSA	18.0	27.3	18.7	30.4	27.3	30.3
Non-MSA	4.2	8.4	3.8	8.0	8.4	7.6
Homeownership						
Owned free and clear	51.4	56.8	49.4	56.4	56.8	54.2
Owned with mortgage	8.4	13.0	8.1	11.2	13.0	10.0
Renting or residing without rent	40.2	30.2	42.5	32.4	30.2	35.7

Note: GED = general equivalency diploma. MSA = Metropolitan Statistical Area. Weighted percentages are for adults aged 26 to 64 years.

Table 5.3 Changes in Health Insurance Coverage After the Implementation of New York's Marriage Equality Act

	Treatment Group: NY Adults in Same-Sex Couples				Comparison Group: NY Adults in Opposite-Sex Couples				Unadjusted Difference-in-Differences		Regression Adjusted Difference-in-Differences without Propensity Score Weighting		Regression Adjusted Difference-in-Differences with Propensity Score Weighting	
	Before	After	Difference		Before	After	Difference		Percentage Points	(95% CI)	Percentage Points	(95% CI)	Percentage Points	(95% CI)
Men														
ESI Coverage	76.8	84.5	7.7	**	75.8	73.9	-1.9	***	9.6	(3.8, 15.5)**	5.1	(0.05, 10.2)**	4.4	(-0.5, 9.3)*
Other Coverage	13.8	8.5	-5.3	**	13.5	14.4	0.8	**	-6.1	(-10.6, -1.6)**	-3.6	(-7.9, 0.8)	-4.2	(-8.4, -0.02)**
Uninsured	9.4	7.0	-2.5		10.6	11.7	1.1	***	-3.5	(-7.5, 0.4)*	-1.5	(-5.0, 1.9)	-0.2	(-3.6, 3.2)
Women														
ESI Coverage	78.4	84.2	5.7	*	76.4	74.6	-1.8	***	7.5	(1.7, 13.5)**	7.0	(1.7, 12.2)**	5.6	(0.5, 10.6)**
Other Coverage	14.4	10.6	-3.8		14.7	15.7	1.0	**	-4.8	(-9.9, 0.4)*	-4.6	(-9.3, 0.2)*	-4.0	(-8.6, 0.5)*
Uninsured	7.2	5.2	-2.0		8.9	9.7	0.8	**	-2.8	(-6.1, 0.6)	-2.4	(-5.6, 0.7)	-1.5	(-4.3, 1.3)

Note: Regression adjusted difference-in-difference estimates are from linear probability models adjusting for age group, race/ethnicity, educational attainment, the couple's combined income, the presence of a child in the household, the presence of a person ≥65 in the household, citizenship, disability status, MSA residence and homeownership.

*P<0.10; **P<0.05; ***P<0.001.

Source: 2008-2012 American Community Survey

Table 5.4 Changes in Household Health Insurance Coverage After the Implementation of New York's Marriage Equality Act

	Treatment Group				Comparison Group									
	NY Same-Sex Households				NY Opposite-Sex Households				Unadjusted Difference-in-Differences		Regression Adjusted Difference-in-Differences without Propensity Score Weighting		Regression Adjusted Difference-in-Differences with Propensity Score Weighting	
	Before	After	Difference		Before	After	Difference		Percentage Points	(95% CI)	Percentage Points	(95% CI)	Percentage Points	(95% CI)
Men														
Both Members Insured	85.5	88.4	3.1		87.0	85.7	-1.3	***	4.4	(-1.9, 10.6)	2.0	(-3.7, 7.8)	0.1	(-5.7, 5.9)
Both Members Insured by ESI	66.9	76.8	10.0	**	71.7	69.8	-1.9	***	11.9	(3.7, 20.0)**	7.2	(-0.3, 14.7)*	5.8	(-1.5, 13.2)
Women														
Both Members Insured	87.9	89.4	1.5		87.0	85.7	-1.3	***	2.8	(-3.5, 9.0)	2.7	(-3.4, 8.7)	0.8	(-5.0, 6.6)
Both Members Insured by ESI	71.1	74.0	2.9		71.7	69.8	-1.9	***	4.8	(-3.9, 13.5)	4.6	(-3.0, 12.3)	3.3	(-4.2, 10.7)

Note: Regression Adjusted difference-in-difference estimates are from linear probability models adjusting for age group, race/ethnicity, educational attainment, the couple's combined income, the presence of a child in the household, the presence of a person ≥65 in the household, citizenship, disability status, MSA residence and homeownership.
*P<0.10; **P<0.05; ***P<0.001.
Source: 2008-2012 American Community Survey

Table 5.5 State Weights Used to Construct Synthetic New York

State	Men in Same-Sex Couples	Women in Same-Sex Couples
Alabama	0	0
Arizona	0	0
Arkansas	0	0
Colorado	0	0
Florida	0	0
Georgia	0	0
Indiana	0	0
Kansas	0	0
Kentucky	0	0
Louisiana	0	0
Maine	0	0
Maryland	0.17	0.30
Michigan	0.0	0
Minnesota	0.22	0
Mississippi	0	0
Missouri	0	0
New Mexico	0	0.09
North Carolina	0	0
Ohio	0	0
Oklahoma	0	0
Pennsylvania	0.61	0.07
South Carolina	0	0
Tennessee	0	0
Texas	0	0
Utah	0	0
Virginia	0	0.55

Note: State weights were estimated from the synthetic control method and "synth" program in Stata developed by Abadie *et al*. (2010; 2014). State weights are from the synthetic control method used to create synthetic New York and based on state-level ESI rates and demographic characteristics for adults in same-sex relationships.

Table 5.6 Results from the Falsification Test on Each Outcome, By Sex and Outcome

	Men (n = 1,525,768)						Women (n = 1,527,064)					
	ESI		Other Coverage		Uninsured		ESI		Other Coverage		Uninsured	
	Coef.	(Std. Error)	Coef.	(Std. Error)	Coef.	(Std. Error)	Coef.	(Std. Error)	Coef.	(Std. Error)	Coef.	(Std. Error)
Post	-0.014	(0.001)***	0.008	(0.001)***	0.005	(0.001)***	-0.017	(0.001)***	0.010	(0.001)***	0.007	(0.001)***
Treat	-0.066	(0.005)***	0.037	(0.005)***	0.029	(0.004)***	-0.042	(0.005)***	0.015	(0.004)**	0.028	(0.004)***
Post x Treat	0.011	(0.012)	-0.014	(0.01)	0.003	(0.01)	-0.002	(0.012)	-0.002	(0.01)	0.003	(0.01)
Education												
Less than high school	-0.129	(0.002)***	-0.015	(0.002)***	0.144	(0.002)***	-0.169	(0.002)***	0.011	(0.002)***	0.158	(0.002)***
High School	-0.041	(0.001)***	-0.022	(0.001)***	0.063	(0.001)***	-0.060	(0.001)***	-0.005	(0.001)***	0.065	(0.001)***
Some College	-0.029	(0.001)***	0.002	(0.001)**	0.027	(0.001)***	-0.041	(0.001)***	0.006	(0.001)***	0.035	(0.001)***
Bachelor's Degree	Ref		Ref		Ref		Ref		Ref		Ref	
Graduate degree	-0.002	(0.001)*	0.015	(0.001)***	-0.012	(0.001)***	0.027	(0.001)***	-0.019	(0.001)***	-0.007	(0.001)***
Race/Ethnicity												
White	Ref		Ref		Ref		Ref		Ref		Ref	
Hispanic	-0.020	(0.002)***	-0.045	(0.001)***	0.065	(0.002)***	-0.023	(0.002)***	-0.047	(0.001)***	0.070	(0.002)***
Black	0.005	(0.002)**	-0.004	(0.001)**	-0.001	(0.001)	0.030	(0.002)***	-0.010	(0.001)***	-0.020	(0.001)***
Asian	0.039	(0.003)***	0.020	(0.002)***	-0.059	(0.003)***	0.030	(0.003)***	0.033	(0.002)***	-0.063	(0.002)***
Multiple/Other Races	-0.043	(0.003)***	-0.003	(0.003)	0.046	(0.003)***	-0.045	(0.003)***	0.003	(0.003)	0.042	(0.003)***
Age Group												
25-34	-0.015	(0.001)***	-0.049	(0.001)***	0.064	(0.001)***	-0.032	(0.001)***	-0.021	(0.001)***	0.052	(0.001)***
35-44	-0.012	(0.001)***	-0.045	(0.001)***	0.058	(0.001)***	-0.018	(0.001)***	-0.032	(0.001)***	0.050	(0.001)***
45-54	-0.004	(0.001)***	-0.034	(0.001)***	0.037	(0.001)***	-0.004	(0.001)***	-0.028	(0.001)***	0.033	(0.001)***
55-64	Ref		Ref		Ref		Ref		Ref		Ref	
Citizenship												
Citizen	Ref		Ref		Ref		Ref		Ref		Ref	
Naturalized	-0.057	(0.002)***	-0.006	(0.002)**	0.063	(0.002)***	-0.063	(0.002)***	0.014	(0.002)***	0.050	(0.002)***
Non-Citizen	-0.104	(0.002)***	-0.078	(0.002)***	0.182	(0.002)***	-0.115	(0.002)***	-0.060	(0.002)***	0.174	(0.002)***

Disabled	-0.138	(0.002)***	0.235	(0.002)**	-0.097	(0.002)***	-0.106	(0.002)***	0.175	(0.002)***	-0.069	(0.002)***
MSA Residence	0.020	(0.001)***	-0.014	(0.001)**	-0.007	(0.001)***	0.022	(0.001)***	-0.006	(0.001)***	-0.016	(0.001)***
Homeownership												
Own home free and clear	Ref		Ref		Ref		Ref		Ref		Ref	
Own home with mortgage	-0.030	(0.001)***	0.026	(0.001)***	0.004	(0.001)***	-0.033	(0.001)***	0.028	(0.001)***	0.006	(0.001)***
Renting	-0.114	(0.001)***	0.026	(0.001)***	0.088	(0.001)***	-0.110	(0.001)***	0.037	(0.001)***	0.072	(0.001)***
Any kids	-0.009	(0.001)***	0.019	(0.001)***	-0.011	(0.001)***	-0.022	(0.001)***	0.028	(0.001)***	-0.006	(0.001)***
Any older adults	-0.004	(0.003)	-0.001	(0.002)	0.006	(0.002)**	-0.006	(0.003)**	-0.002	(0.002)	0.008	(0.002)**
Couple's Combined Income												
0-34999	-0.382	(0.002)***	0.158	(0.001)***	0.224	(0.002)***	-0.391	(0.002)***	0.155	(0.001)***	0.236	(0.001)***
35000-49999	-0.129	(0.002)***	0.039	(0.001)***	0.090	(0.001)***	-0.135	(0.002)***	0.041	(0.001)***	0.095	(0.001)***
50000-74999	Ref		Ref		Ref		Ref		Ref		Ref	
75000-99999	0.064	(0.001)***	-0.024	(0.001)***	-0.040	(0.001)***	0.061	(0.001)***	-0.020	(0.001)***	-0.041	(0.001)***
100000-149999	0.079	(0.001)***	-0.032	(0.001)***	-0.047	(0.001)***	0.068	(0.001)***	-0.021	(0.001)***	-0.046	(0.001)***
>150000	0.051	(0.001)***	-0.014	(0.001)***	-0.037	(0.001)***	0.036	(0.001)***	0.005	(0.001)***	-0.040	(0.001)***
State												
Alabama	Ref		Ref		Ref		Ref		Ref		Ref	
Alaska	-0.112	(0.009)***	0.048	(0.007)***	0.063	(0.007)***	-0.096	(0.008)***	0.030	(0.007)***	0.066	(0.007)***
Arizona	-0.061	(0.004)***	0.058	(0.003)***	0.003	(0.003)	-0.051	(0.004)***	0.059	(0.003)***	-0.008	(0.003)**
Arkansas	-0.041	(0.004)***	0.015	(0.004)***	0.026	(0.004)***	-0.033	(0.004)***	0.000	(0.004)	0.033	(0.004)***
Colorado	-0.079	(0.004)***	0.056	(0.003)***	0.023	(0.003)***	-0.068	(0.004)***	0.055	(0.003)***	0.014	(0.003)***
Florida	-0.086	(0.003)***	0.039	(0.003)***	0.047	(0.002)***	-0.068	(0.003)***	0.032	(0.003)***	0.036	(0.002)***
Georgia	-0.039	(0.003)***	0.002	(0.003)	0.038	(0.003)***	-0.030	(0.003)***	-0.003	(0.003)	0.033	(0.003)***
Idaho	-0.063	(0.005)***	0.031	(0.005)***	0.031	(0.004)***	-0.051	(0.005)***	0.024	(0.004)***	0.027	(0.004)***
Indiana	0.006	(0.003)*	-0.018	(0.003)***	0.012	(0.003)***	0.013	(0.003)***	-0.020	(0.003)***	0.007	(0.003)**
Kansas	-0.006	(0.004)	0.004	(0.003)	0.002	(0.003)	-0.003	(0.004)	0.003	(0.003)	0.000	(0.003)
Kentucky	-0.010	(0.004)**	0.009	(0.003)**	0.001	(0.003)	0.003	(0.004)	-0.006	(0.003)*	0.003	(0.003)
Louisiana	-0.054	(0.004)***	0.013	(0.003)***	0.040	(0.003)***	-0.058	(0.004)***	0.010	(0.003)**	0.049	(0.003)***
Maine	-0.063	(0.005)***	0.056	(0.005)***	0.007	(0.004)	-0.047	(0.005)***	0.063	(0.005)***	-0.016	(0.004)***

Maryland	-0.014	(0.003)***	0.012	(0.003)***	0.002	(0.003)	-0.009	(0.003)**	0.011	(0.003)***	-0.002	(0.003)
Michigan	0.009	(0.003)**	-0.009	(0.003)***	0.000	(0.002)	0.015	(0.003)***	-0.003	(0.003)	-0.012	(0.002)***
Minnesota	-0.018	(0.003)***	0.029	(0.003)***	-0.011	(0.003)***	-0.006	(0.003)*	0.027	(0.003)***	-0.022	(0.003)***
Mississippi	-0.045	(0.005)***	0.010	(0.004)**	0.035	(0.004)***	-0.035	(0.004)***	0.002	(0.004)	0.033	(0.004)***
Missouri	-0.018	(0.003)***	0.004	(0.003)	0.014	(0.003)***	-0.006	(0.003)*	-0.001	(0.003)	0.007	(0.003)
Montana	-0.096	(0.007)***	0.033	(0.006)***	0.063	(0.006)***	-0.076	(0.007)***	0.022	(0.005)***	0.053	(0.006)***
Nebraska	-0.026	(0.005)***	0.035	(0.004)***	-0.010	(0.004)**	-0.021	(0.005)***	0.032	(0.004)***	-0.011	(0.004)**
New Mexico	-0.074	(0.005)***	0.046	(0.004)***	0.028	(0.004)***	-0.065	(0.005)***	0.047	(0.004)***	0.017	(0.004)***
North Carolina	-0.054	(0.003)***	0.026	(0.003)***	0.028	(0.003)***	-0.043	(0.003)***	0.018	(0.003)***	0.025	(0.003)***
North Dakota	-0.031	(0.007)***	0.043	(0.006)***	-0.012	(0.005)**	-0.026	(0.007)***	0.039	(0.006)***	-0.013	(0.005)**
Ohio	0.019	(0.003)***	-0.015	(0.003)***	-0.004	(0.002)*	0.023	(0.003)***	-0.014	(0.003)***	-0.010	(0.002)***
Oklahoma	-0.042	(0.004)***	0.002	(0.003)	0.040	(0.003)***	-0.038	(0.004)***	-0.007	(0.003)*	0.044	(0.003)***
Pennsylvania	0.012	(0.003)***	-0.005	(0.003)*	-0.007	(0.002)**	0.019	(0.003)***	-0.002	(0.003)	-0.017	(0.002)***
South Carolina	-0.041	(0.004)***	0.014	(0.003)***	0.027	(0.003)***	-0.033	(0.004)***	0.008	(0.003)**	0.025	(0.003)***
South Dakota	-0.063	(0.007)***	0.062	(0.006)***	0.001	(0.005)	-0.044	(0.007)***	0.049	(0.006)***	-0.005	(0.005)
Tennessee	-0.025	(0.003)***	0.018	(0.003)***	0.007	(0.003)**	-0.015	(0.003)***	0.017	(0.003)***	-0.002	(0.003)
Texas	-0.057	(0.003)***	0.007	(0.002)**	0.050	(0.002)***	-0.048	(0.003)***	-0.003	(0.002)	0.051	(0.002)***
Utah	-0.013	(0.004)**	0.001	(0.003)	0.012	(0.003)***	-0.002	(0.004)	-0.002	(0.003)	0.003	(0.003)
Virginia	-0.040	(0.003)***	0.037	(0.003)***	0.003	(0.002)	-0.033	(0.003)***	0.033	(0.003)***	0.000	(0.002)
West Virginia	0.016	(0.005)**	-0.028	(0.004)***	0.012	(0.004)**	0.016	(0.005)**	-0.036	(0.004)***	0.020	(0.004)***
Wyoming	-0.065	(0.008)***	0.030	(0.007)***	0.035	(0.006)***	-0.061	(0.008)***	0.017	(0.007)**	0.044	(0.007)***

Source: 2008-2012 American Community Survey

*P<0.10; **P<0.05; ***P<0.001.

Complete Regression Tables

The following tables represent the complete regression results presented in Tables 5.3-5.4.

Table 5.7 Complete Regression Results for Difference-in-Differences Estimates in Table 5.3 Without Propensity Score Weighting

	Men (n = 144,278)						Women (n = 144,118)					
	ESI		Other Coverage		Uninsured		ESI		Other Coverage		Uninsured	
	Coef.	(Std. Error)	Coef.	(Std. Error)	Coef.	(Std. Error)	Coef.	(Std. Error)	Coef.	(Std. Error)	Coef.	(Std. Error)
Post	-0.014	(0.003)***	0.006	(0.003)**	0.008	(0.003)**	-0.015	(0.003)***	0.008	(0.003)**	0.007	(0.002)**
Treatment	-0.059	(0.015)***	0.052	(0.013)***	0.006	(0.009)	-0.049	(0.014)***	0.037	(0.013)**	0.012	(0.009)
Post x Treatment	0.051	(0.026)**	-0.036	(0.022)	-0.015	(0.018)	0.070	(0.027)**	-0.046	(0.024)*	-0.024	(0.016)
Education												
Less than high school	-0.122	(0.006)***	0.048	(0.005)***	0.073	(0.005)***	-0.147	(0.006)***	0.081	(0.006)***	0.066	(0.006)***
High School	-0.040	(0.004)***	0.008	(0.003)**	0.032	(0.003)***	-0.054	(0.004)***	0.025	(0.003)***	0.029	(0.003)***
Some College	-0.020	(0.003)***	0.010	(0.003)***	0.010	(0.003)***	-0.025	(0.003)***	0.015	(0.003)***	0.010	(0.002)***
Bachelor's Degree	Ref		Ref		Ref		Ref		Ref		Ref	
Graduate degree	0.011	(0.003)**	0.002	(0.003)	-0.013	(0.002)***	0.021	(0.003)***	-0.013	(0.003)***	-0.008	(0.002)***
Race/Ethnicity												
White	Ref		Ref		Ref		Ref		Ref		Ref	
Hispanic	-0.020	(0.005)***	-0.055	(0.004)***	0.075	(0.004)***	-0.027	(0.005)***	-0.036	(0.004)***	0.063	(0.004)***
Black	0.021	(0.005)***	-0.024	(0.004)***	0.002	(0.004)	0.036	(0.005)***	-0.029	(0.005)***	-0.007	(0.004)*
Asian	-0.036	(0.006)***	0.051	(0.005)***	-0.015	(0.005)**	-0.035	(0.006)***	0.049	(0.005)***	-0.014	(0.005)**
Multiple/Other Races	-0.010	(0.01)	-0.004	(0.009)	0.015	(0.009)	-0.024	(0.01)**	0.006	(0.01)	0.018	(0.009)**
Age Group												
25-34	-0.031	(0.004)***	-0.046	(0.004)***	0.077	(0.004)***	-0.040	(0.004)***	-0.008	(0.004)**	0.048	(0.003)***
35-44	-0.019	(0.004)***	-0.036	(0.003)***	0.055	(0.003)***	-0.023	(0.004)***	-0.017	(0.004)***	0.039	(0.003)***
45-54	-0.010	(0.003)**	-0.018	(0.003)***	0.028	(0.002)***	-0.006	(0.003)*	-0.016	(0.003)***	0.022	(0.002)***
55-64	Ref		Ref		Ref		Ref		Ref		Ref	

Citizenship												
Citizen	Ref		Ref		Ref		Ref		Ref		Ref	
Naturalized	-0.041	(0.004)***	0.023	(0.004)***	0.018	(0.003)***	-0.034	(0.004)***	0.018	(0.004)***	0.016	(0.003)***
Non-Citizen	-0.139	(0.005)***	-0.041	(0.005)***	0.180	(0.005)***	-0.128	(0.005)***	-0.034	(0.005)***	0.162	(0.005)***
Disabled	-0.103	(0.006)***	0.179	(0.007)***	-0.077	(0.004)***	-0.100	(0.006)***	0.148	(0.006)***	-0.048	(0.004)***
MSA residence												
New York City MSA	Ref		Ref		Ref		Ref		Ref		Ref	
Other MSA	0.015	(0.003)***	-0.013	(0.003)***	-0.003	(0.002)	0.020	(0.003)***	-0.016	(0.003)***	-0.005	(0.002)**
Non-MSA	0.013	(0.004)**	-0.023	(0.004)***	0.010	(0.003)**	0.009	(0.004)**	-0.022	(0.004)***	0.013	(0.003)***
Homeownership												
Owned free and clear	Ref		Ref		Ref		Ref		Ref		Ref	
Owned with mortgage	-0.016	(0.003)***	0.017	(0.003)***	-0.001	(0.002)	-0.015	(0.003)***	0.017	(0.003)***	-0.002	(0.002)
Renting or residing without rent	-0.100	(0.004)***	0.063	(0.003)***	0.037	(0.003)***	-0.090	(0.004)***	0.074	(0.003)***	0.016	(0.003)***
Any children in HH	-0.013	(0.003)***	0.036	(0.002)***	-0.024	(0.002)***	-0.031	(0.003)***	0.052	(0.002)***	-0.021	(0.002)***
Any older adults in HH	-0.005	(0.007)	0.011	(0.006)*	-0.006	(0.005)	0.001	(0.006)	0.006	(0.006)	-0.007	(0.005)
Couple's Combined Income												
0-34,999	-0.411	(0.005)***	0.290	(0.005)***	0.122	(0.005)***	-0.413	(0.005)***	0.301	(0.005)***	0.112	(0.005)***
35,000-49,999	-0.155	(0.006)***	0.081	(0.005)***	0.074	(0.005)***	-0.154	(0.006)***	0.090	(0.005)***	0.064	(0.005)***
50,000-74,999	Ref		Ref		Ref		Ref		Ref		Ref	
75,000-99,999	0.069	(0.004)***	-0.030	(0.003)***	-0.038	(0.003)***	0.068	(0.004)***	-0.035	(0.003)***	-0.034	(0.003)***
100,000-149,999	0.102	(0.004)***	-0.047	(0.003)***	-0.055	(0.003)***	0.090	(0.004)***	-0.046	(0.003)***	-0.044	(0.003)***
>150,000	0.099	(0.004)***	-0.043	(0.003)***	-0.056	(0.003)***	0.090	(0.004)***	-0.043	(0.003)***	-0.047	(0.003)***

Source: 2008-2012 American Community Survey

*P<0.10; **P<0.05; ***P<0.001.

Table 5.8 Complete Regression Results for Difference-in-Differences Estimates in Table 5.3 With Propensity Score Weighting

	Men (n = 144,278)						Women (n = 144,118)					
	ESI		Other Coverage		Uninsured		ESI		Other Coverage		Uninsured	
	Coef.	(Std. Error)	Coef.	(Std. Error)	Coef.	(Std. Error)	Coef.	(Std. Error)	Coef.	(Std. Error)	Coef.	(Std. Error)
Post	-0.003	(0.006)	0.006	(0.005)	-0.003	(0.004)	-0.005	(0.003)	0.004	(0.003)	0.001	(0.003)
Treatment	-0.057	(0.014)***	0.048	(0.013)***	0.009	(0.009)	-0.043	(0.013)**	0.033	(0.013)**	0.010	(0.008)
Post x Treatment	0.044	(0.025)*	-0.042	(0.021)**	-0.002	(0.017)	0.056	(0.026)**	-0.040	(0.023)*	-0.015	(0.014)
Education												
Less than high school	-0.091	(0.031)**	0.018	(0.03)	0.073	(0.031)**	-0.132	(0.033)***	0.057	(0.04)	0.075	(0.033)**
High School	-0.056	(0.022)**	0.007	(0.017)	0.050	(0.019)**	-0.019	(0.019)	0.002	(0.016)	0.016	(0.013)
Some College	-0.027	(0.014)*	0.000	(0.012)	0.028	(0.011)**	-0.011	(0.015)	-0.003	(0.014)	0.014	(0.009)
Bachelor's Degree	Ref		Ref		Ref		Ref		Ref		Ref	
Graduate degree	0.027	(0.012)**	-0.014	(0.01)	-0.014	(0.008)*	0.018	(0.013)	-0.015	(0.011)	-0.003	(0.008)
Race/Ethnicity												
White	Ref		Ref		Ref		Ref		Ref		Ref	
Hispanic	-0.014	(0.017)	-0.005	(0.014)	0.019	(0.013)	0.004	(0.017)	-0.003	(0.018)	-0.001	(0.014)
Black	-0.008	(0.021)	0.032	(0.023)	-0.024	(0.02)	0.011	(0.024)	0.016	(0.023)	-0.027	(0.015)*
Asian	0.056	(0.029)*	-0.047	(0.017)**	-0.009	(0.028)	0.063	(0.026)**	-0.012	(0.02)	-0.052	(0.021)**
Multiple/Other Races	-0.010	(0.032)	0.034	(0.032)	-0.024	(0.017)	-0.046	(0.048)	-0.007	(0.028)	0.054	(0.044)
Age Group												
25-34	0.016	(0.022)	-0.063	(0.02)**	0.048	(0.014)**	-0.040	(0.019)**	0.003	(0.018)	0.037	(0.01)***
35-44	0.011	(0.02)	-0.042	(0.019)**	0.031	(0.01)**	-0.015	(0.016)	-0.027	(0.015)*	0.042	(0.009)***
45-54	-0.010	(0.019)	0.000	(0.017)	0.010	(0.01)	-0.011	(0.015)	-0.018	(0.015)	0.029	(0.008)***
55-64	Ref		Ref		Ref		Ref		Ref		Ref	
Citizenship												

Citizen	Ref		Ref		Ref		Ref		Ref		Ref	
Naturalized	-0.044	(0.022)**	0.038	(0.019)**	0.006	(0.013)	-0.038	(0.024)	0.002	(0.019)	0.036	(0.016)**
Non-Citizen	-0.116	(0.02)***	0.003	(0.019)	0.113	(0.018)***	-0.129	(0.025)***	-0.060	(0.026)**	0.189	(0.03)***
Disabled	-0.093	(0.031)**	0.203	(0.032)***	-0.110	(0.013)***	-0.199	(0.024)***	0.232	(0.025)***	-0.033	(0.016)**
MSA residence												
New York City MSA	Ref		Ref		Ref		Ref		Ref		Ref	
Other MSA	0.042	(0.015)**	-0.012	(0.014)	-0.031	(0.009)**	0.025	(0.014)*	-0.014	(0.013)	-0.011	(0.008)
Non-MSA	0.055	(0.029)*	-0.030	(0.023)	-0.025	(0.016)	0.009	(0.029)	-0.010	(0.029)	0.000	(0.012)
Homeownership												
Owned free and clear	Ref		Ref		Ref		Ref		Ref		Ref	
Owned with mortgage	-0.065	(0.035)*	0.072	(0.035)**	-0.008	(0.01)	-0.028	(0.024)	0.026	(0.023)	0.002	(0.011)
Renting or residing without rent	-0.062	(0.014)***	0.022	(0.012)*	0.040	(0.009)***	-0.064	(0.014)***	0.036	(0.013)**	0.028	(0.008)**
Any children in HH	0.021	(0.014)	-0.022	(0.013)*	0.001	(0.014)	-0.003	(0.011)	0.032	(0.011)**	-0.029	(0.008)***
Any older adults in HH	-0.006	(0.036)	0.021	(0.046)	-0.015	(0.027)	-0.058	(0.041)	0.017	(0.033)	0.041	(0.034)
Couple's Combined Income												
0-34,999	-0.407	(0.028)***	0.234	(0.025)***	0.173	(0.028)***	-0.386	(0.028)***	0.272	(0.029)***	0.114	(0.021)***
35,000-49,999	-0.142	(0.032)***	0.049	(0.025)*	0.093	(0.025)***	-0.129	(0.031)***	0.097	(0.027)***	0.032	(0.017)*
50,000-74,999	Ref		Ref		Ref		Ref		Ref		Ref	
75,000-99,999	0.063	(0.029)**	-0.016	(0.026)	-0.047	(0.019)**	0.081	(0.024)**	-0.044	(0.022)**	-0.037	(0.014)**
100,000-149,999	0.142	(0.021)***	-0.048	(0.017)**	-0.093	(0.015)***	0.109	(0.021)***	-0.062	(0.018)**	-0.047	(0.013)***
>150,000	0.133	(0.022)***	-0.035	(0.018)*	-0.099	(0.015)***	0.123	(0.021)***	-0.062	(0.019)**	-0.061	(0.013)***

Source: 2008-2012 American Community Survey

*P<0.10; **P<0.05; ***P<0.001.

Table 5.9 Complete Regression Results for Difference-in-Differences Estimates in Table 5.4 Without Propensity Score Weighting

	Men (n = 143,357)				Women (n = 143,277)			
	Both insured		Both insured by ESI		Both insured		Both insured by ESI	
	Coef.	(Std. Error)	Coef.	(Std. Error)	Coef.	(Std. Error)	Coef.	(Std. Error)
Post	-0.011	(0.003)***	-0.015	(0.003)***	-0.011	(0.003)***	-0.015	(0.003)***
Treatment	-0.041	(0.014)**	-0.118	(0.019)***	-0.028	(0.014)**	-0.071	(0.017)***
Post x Treatment	0.020	(0.029)	0.072	(0.038)*	0.027	(0.031)	0.046	(0.039)
Education								
Less than high school	-0.108	(0.008)***	-0.137	(0.007)***	-0.108	(0.008)***	-0.137	(0.007)***
High School	-0.049	(0.004)***	-0.055	(0.005)***	-0.049	(0.004)***	-0.055	(0.005)***
Some College	-0.018	(0.003)***	-0.020	(0.004)***	-0.018	(0.003)***	-0.020	(0.004)***
Bachelor's Degree	Ref		Ref		Ref		Ref	
Graduate degree	0.015	(0.002)***	0.022	(0.003)***	0.015	(0.002)***	0.021	(0.003)***
Race/Ethnicity								
Both white	Ref		Ref		Ref		Ref	
One non-white	-0.014	(0.004)**	-0.013	(0.005)**	-0.014	(0.004)***	-0.013	(0.005)**
Both non-white	-0.042	(0.003)***	-0.040	(0.004)***	-0.041	(0.003)***	-0.041	(0.004)***
Age Group								
25-34	-0.080	(0.004)***	-0.039	(0.005)***	-0.079	(0.004)***	-0.040	(0.005)***
35-44	-0.065	(0.003)***	-0.026	(0.004)***	-0.065	(0.003)***	-0.027	(0.004)***
45-54	-0.034	(0.003)***	-0.012	(0.003)***	-0.034	(0.003)***	-0.012	(0.003)***
55-64	Ref		Ref		Ref		Ref	
Any non-citizen	-0.142	(0.004)***	-0.102	(0.005)***	-0.142	(0.004)***	-0.102	(0.005)***
Any disabled	0.023	(0.004)***	-0.086	(0.005)***	0.022	(0.004)***	-0.088	(0.005)***

MSA residence								
New York City MSA	Ref		Ref		Ref		Ref	
Other MSA	0.003	(0.002)	0.021	(0.003)***	0.002	(0.002)	0.021	(0.003)***
Non-MSA	-0.019	(0.004)***	0.008	(0.004)*	-0.019	(0.004)***	0.008	(0.004)*
Homeownership								
Owned free and clear	Ref		Ref		Ref		Ref	
Owned with mortgage	0.004	(0.003)	-0.015	(0.004)***	0.004	(0.003)	-0.015	(0.004)***
Renting or residing without rent	-0.053	(0.003)***	-0.118	(0.004)***	-0.053	(0.003)***	-0.118	(0.004)***
Any children in HH	0.034	(0.003)***	-0.009	(0.003)**	0.035	(0.003)***	-0.009	(0.003)**
Any older adults in HH	0.012	(0.006)**	-0.007	(0.007)	0.011	(0.006)*	-0.008	(0.007)
Couple's Combined Income								
0-34,999	-0.139	(0.005)***	-0.399	(0.005)***	-0.139	(0.005)***	-0.399	(0.005)***
35,000-49,999	-0.089	(0.005)***	-0.171	(0.006)***	-0.089	(0.005)***	-0.171	(0.006)***
50,000-74,999	Ref		Ref		Ref		Ref	
75,000-99,999	0.046	(0.004)***	0.084	(0.004)***	0.046	(0.004)***	0.084	(0.004)***
100,000-149,999	0.067	(0.003)***	0.125	(0.004)***	0.066	(0.003)***	0.125	(0.004)***
>150,000	0.071	(0.003)***	0.128	(0.005)***	0.071	(0.003)***	0.128	(0.005)***

Source: 2008-2012 American Community Survey

*P<0.10; **P<0.05; ***P<0.001.

Table 5.10 Complete Regression Results for Difference-in-Differences Estimates in Table 5.4 With Propensity Score Weighting

	Men (n = 143,357)				Women (n = 143,277)			
	Both insured		Both insured by ESI		Both insured		Both insured by ESI	
	Coef.	(Std. Error)	Coef.	(Std. Error)	Coef.	(Std. Error)	Coef.	(Std. Error)
Post	0.004	(0.006)	0.001	(0.007)	0.000	(0.003)	-0.005	(0.004)
Treatment	-0.038	(0.013)**	-0.110	(0.019)***	-0.022	(0.014)	-0.065	(0.016)***
Post x Treatment	0.001	(0.03)	0.058	(0.038)	0.008	(0.03)	0.033	(0.038)
Education								
Less than high school	-0.028	(0.056)	-0.072	(0.035)**	-0.131	(0.082)	-0.110	(0.054)**
High School	-0.073	(0.034)**	-0.048	(0.035)	-0.024	(0.042)	-0.039	(0.039)
Some College	-0.007	(0.02)	-0.026	(0.026)	-0.012	(0.019)	-0.021	(0.023)
Bachelor's Degree	Ref		Ref		Ref		Ref	
Graduate degree	0.023	(0.014)*	0.036	(0.019)*	0.015	(0.015)	0.014	(0.019)
Race/Ethnicity								
Both white	Ref		Ref		Ref		Ref	
One non-white	0.000	(0.016)	-0.006	(0.021)	-0.003	(0.019)	-0.029	(0.024)
Both non-white	-0.021	(0.021)	-0.011	(0.023)	0.014	(0.019)	-0.026	(0.022)
Age Group								
25-34	-0.087	(0.026)**	0.019	(0.031)	-0.056	(0.023)**	-0.046	(0.029)
35-44	-0.052	(0.015)**	0.042	(0.025)*	-0.052	(0.016)**	-0.009	(0.022)
45-54	-0.019	(0.014)	0.013	(0.024)	-0.037	(0.015)**	-0.006	(0.021)
55-64	Ref		Ref		Ref		Ref	
Any non-citizen	-0.100	(0.021)***	-0.102	(0.025)***	-0.145	(0.028)***	-0.083	(0.029)**
Any disabled	0.070	(0.019)***	-0.063	(0.035)*	0.022	(0.022)	-0.148	(0.026)***

MSA residence								
New York City MSA	Ref		Ref		Ref		Ref	
Other MSA	0.032	(0.014)**	0.051	(0.022)**	0.019	(0.015)	0.032	(0.018)*
Non-MSA	0.015	(0.028)	0.073	(0.038)*	0.000	(0.023)	0.018	(0.03)
Homeownership								
Owned free and clear	Ref		Ref		Ref		Ref	
Owned with mortgage	0.004	(0.017)	-0.056	(0.036)	0.005	(0.019)	-0.021	(0.029)
Renting or residing without rent	-0.055	(0.014)***	-0.068	(0.019)***	-0.057	(0.015)***	-0.094	(0.019)***
Any children in HH	0.016	(0.018)	0.029	(0.021)	0.054	(0.012)***	0.016	(0.015)
Any older adults in HH	0.008	(0.035)	-0.004	(0.044)	-0.096	(0.064)	-0.093	(0.063)
Couple's Combined Income								
0-34,999	-0.212	(0.037)***	-0.382	(0.032)***	-0.168	(0.033)***	-0.380	(0.032)***
35,000-49,999	-0.129	(0.04)**	-0.151	(0.043)***	-0.071	(0.032)**	-0.139	(0.039)***
50,000-74,999	Ref		Ref		Ref		Ref	
75,000-99,999	0.067	(0.028)**	0.095	(0.038)**	0.047	(0.024)**	0.121	(0.032)***
100,000-149,999	0.127	(0.023)***	0.198	(0.03)***	0.076	(0.021)***	0.177	(0.029)***
>150,000	0.140	(0.022)***	0.202	(0.03)***	0.102	(0.019)***	0.198	(0.029)***

Source: 2008-2012 American Community Survey

*P<0.10; **P<0.05; ***P<0.001.

5A. Technical Appendix to Chapter 5: Data and Sample Limitations

This technical appendix describes the instrumentation challenges to measuring cohabiting same-sex couples in the American Community Survey (ACS) and how changes in the ACS have improved the measurement of same-sex couples and disrupted the measurement of cohabiting same-sex couples over time. After discussing the data limitations surrounding the measurement of same-sex couples in the ACS, this technical appendix provides recommendations for using the public use ACS to measure same-sex couples and demonstrates how measurement can affect regression-based analyses.

5A.1 Data Source

This technical appendix uses cross-sectional data from the 2008-2013[27] American Community Survey (ACS) Public Use Microdata Samples (PUMS) [U.S. Census Bureau 2015]. The ACS is a household survey conducted annually over a 12-month calendar period by the U.S. Census Bureau. Replacing the decennial Census long-form questionnaire in 2005, the ACS is designed to provide states and communities with timely demographic, economic and housing information. Many state and local governments rely on the ACS to plan and monitor programs that affect housing, transportation, health care and education (Powers, Beede and Telles 2015).

Each year, approximately 3 million housing units are selected from the U.S. Census Bureau's Master Address File and sent a mail questionnaire requesting information on the physical characteristics of the housing structure and information for

[27] Data from 2013 are used in this technical appendix to assess the quality and usefulness of additional data, but my evaluation, included in this chapter, recommends not combining data on same-sex couples from the 2008-2012 ACS with the 2013 ACS.

each person in the household. Although households are asked to return their completed mail forms promptly, respondents are eligible for Computer-Assisted Telephone Interviewing (CATI) after one month of non-response. During the third month of non-response, the U.S. Census Bureau retrieves answers using Computer-Assisted Personal Interviewing (CAPI) methods (Virgile 2011). Beginning with the 2013 ACS, households were allowed to submit their responses online using a computer or a handheld tablet (Horwitz 2015).[28]

Households are required by federal law (Title 18 U.S.C. Section 3571 and 3559) to complete the ACS, and the Census Bureau uses a multi-modal survey design, three to four mailings to encourage housing units to return the questionnaire, CATI methods for initial non-respondents, and CAPI methods for a subsample of mail and telephone non-respondents. Therefore, the ACS maintains a relatively high response rate, which is defined as the ratio of the estimate of units interviewed after data collection is complete to the estimate of all units that should have been interviewed. According to the U.S. Census Bureau (2015), the housing unit response rate averages approximately 97% each year. In 2013, the response rate was 89.9% because the Census Bureau did not conduct follow-ups in October 2013 due to a federal government shutdown.

5A.2 Study Sample and Challenges in the ACS

Like most federal surveys, the ACS does not directly ascertain sexual orientation. Previous research using the ACS identifies same-sex couples and same-sex households when the primary respondent (most often "the person living or staying here in whose name this house or apartment is owned, being bought, or rented") identifies another

[28] All self-responses (i.e. mail and internet) are treated equally in weighting procedures (U.S. Census Bureau 2014 *Data and Methodology Report*).

cohabiting person of the same sex as a husband, wife, or unmarried partner (see Figure A9 on page 264) [Gates and Steinberger 2009; Gates 2010; O'Connell and Feliz 2011; DeMaio, Bates, and O'Connell 2013]. The current study uses this same approach and assumes cohabiting same-sex couples are lesbian, gay or bisexual (LGB); transgender populations are not identifiable given the binary male-female response options for sex. Same-sex couples are missing in this analysis if they are not in a relationship with the primary respondent, not cohabiting together in the same house or apartment, or designate alternative relationship categories, such as a roommate or nonrelative, to conceal their relationship.

Prior to 2013 and in accordance with the Defense of Marriage Act (DOMA)[29]—which defined marriage between one man and one woman for federal purposes—same-sex couples using the "husband/wife" response categories were edited and recoded as "unmarried partners" by the Census Bureau regardless of their legal marital status (O'Connell and Gooding 2006; Lofquist and Lewis 2015). In the 2012 ACS, the Census Bureau included "editing flags"[30] identifying the sample of same-sex spouses changed to unmarried partners, and in the 2013 ACS, all same-sex spouses using the "husband/wife" categories were retained without edits in the public use files for the first time (Lofquist and Lewis 2015; Lofquist 2015).[31]

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[29] Section 3 of the federal Defense of Marriage Act (DOMA)—signed into law in 1996 and overturned by the U.S. Supreme Court in *United States v. Windsor* in 2013—defined marriage as "a legal union between one man and one woman as husband and wife" for federal purposes, including federal data collection, federal income taxes and eligibility for public programs.

[30] The recode editing flag is labeled SSPA in the 2012 ACS PUMS.

[31] Allocation flags (labeled SSMC) were also included to indicate whether the householder or spouse did not report their sex, and sex was assigned, or imputed, based on their first name (Lofquist 2015).

An additional concern with using the ACS for same-sex marriage research is that there is now a large body of research suggesting that many *married* same-sex couples using the "husband/wife" categories may actually be opposite-sex couples who mistakenly marked the wrong sex on the survey form (Black et al. 2007; Gates and Steinberger 2009; O'Connell and Feliz 2011; Kreider and Lofquist 2015; Lewis, Bates and Streeter 2015). Although this type of error occurs relatively infrequent among opposite-sex couples, a small number of miscoded opposite-sex couples can inundate and contaminate the relatively small sample of same-sex couples. Estimates vary, but between 20-57% of the national sample of *married* same-sex couples using the "husband/wife" designation and approximately 7% of *unmarried* same-sex couples using the "unmarried partner" designation may actually represent miscoded opposite-sex couples in the ACS (Black et al., 2007; Gates and Steinberger 2009; Kreider and Lofquist 2015; Lofquist 2015). Additionally, for reasons discussed below, the potential rate of contamination varies by response mode. The percentage of married same-sex couples likely to be opposite-sex couples misreporting sex is 59.2% in mail responses and 46.3% in the CATI/CAPI responses (Krieder & Lofquist 2015).

5A.3 Contamination in the Sample of Married Same-Sex Couples

Previous research by Gates and Steinberger (2009) provides guidance for reducing the contamination problem among married same-sex couples in the ACS. To illustrate the problem, Figure A1 divides the total sample of same-sex couples by response mode and allocated marital status. Quadrants (1) & (3) are assumed to represent the sample of same-sex couples using the "unmarried partner" category and with fewer contamination issues, (Gates and Steinberger 2009; Klawitter 2011; Badgett and

Schneebaum 2015), perhaps because the distal position of "unmarried partner" in the relationship roster (see Figure A9 on page 264) suggests that the respondent may be carefully answering the questionnaire. Research from the Census Bureau indicates that approximately 93% of same-sex couples using this "unmarried partner" designation (Quadrants 1 & 3) are credible same-sex couples when matching data from the 2010 Census to name directories indicating the state-specific probability of a male first name (O'Connell and Feliz 2011).[32] Similar results were found after merging the 2010 ACS to Social Security administrative records: 93% of same-sex couples using the "unmarried partner" response were valid same-sex couples (Krieder and Lofquist 2015).

Figure A1 Same-sex couples in the ACS by response mode and allocated marital status

	Not allocated marital status	**Allocated marital status (or self-reported same-sex spouses in the 2013 ACS)**
Self-responses (mail and internet)	(1) Same-sex couples who used the "unmarried partner" designation	(2) A combination of same-sex spousal couples who used the "husband/wife" designation and opposite-sex married couples who miscoded the sex of one spouse
CATI/CAPI responses	(3) Same-sex couples who used the "unmarried partner" designation	(4) A combination of same-sex spousal couples who used the "husband/wife" designation and opposite-sex married couples who miscoded the sex of one spouse

Source: Adapted from Gates and Steinberger (2009).

[32] The sex of a respondent was assumed male if the respondent's first name was used by men at least 95% of the time.

Quadrants (2) and (4) [shaded in Figure A1] correspond to married same-sex couples at greatest risk of contamination from miscoding by opposite-sex couples; this group includes same-sex couples receiving the marital status allocation flag in the 2008-2012 ACS and same-sex couples using the "husband/wife" response categories in the 2013 ACS. The "marital status *allocation* flag" (labeled FMARP in the ACS-PUMS) identifies same-sex spouses where the original marital status response was altered from "currently married" to something else (never married, separated, divorced, widowed) by the Census Bureau. Although the Census Bureau did not release the same-sex "*editing* flags" (labeled SSPA) for same-sex spouses changed to "unmarried partners" until the 2012 ACS, researchers used the marital status allocation flag to identify married same-sex couples after the Census Bureau confirmed a very strong correlation between *editing* flags for married same-sex couples (SSPA) and the marital status *allocation* flag (FMARP) [Black et al., 2007; Gates and Steinberger 2009].

Based on the 2012 ACS sample of 502 same-sex couples in New York (the only year when both editing and allocation flags are publicly available), receiving a marital status allocation flag (FMARP) is highly correlated with self-reporting a same-sex "husband/wife" (SSPA); the correlation coefficient is 95% in the correlation matrix. In fact, every same-sex couple using the "husband/wife" category received the marital status allocation flag (in addition to very few [n=16] same-sex couples using the "unmarried partner" response). This suggests that my method of assigning married same-sex couples using the "husband/wife" response category to Quadrants (2) and (4) in 2013 is consistent with previous practices by the U.S. Census Bureau.

Returning back to Figure A1, Quadrant (2) represents same-sex couples using the "husband/wife" designation in the mail/internet survey, and Quadrant (4) represents same-sex couples using the "husband/wife" designation in the CATI/CAPI surveys. The CATI/CAPI modules prompt the interviewer to verify the sex of a same-sex husband or wife, which should eliminate the possibility of miscoding sex. However, very recent research (Krieder and Lofquist 2015; Lofquist 2015) suggests that Quadrant (4) also suffers contamination issues. After matching the 2010 ACS to information on sex from Social Security administrative records, approximately 59% of Quadrant (2) and 46% of Quadrant (4) represented opposite-sex couples miscoding sex. Using a different method that matched the 2013 ACS to name directories, contamination error rates were smaller: 26.1% of Quadrant (2) and 16.6% of Quadrant (4) were opposite-sex couples misreporting sex (Lofquist 2015), but an additional 19.6% of Quadrant (2) and 18.8% of Quadrant (4) could not be determined since some first names may be ambiguous and commonly used across genders.[33] For added precaution, this technical appendix departs from Gates and Steinberger's guidance and does not assume Quadrant (4) is free from contamination. Instead, this technical appendix assumes that Quadrants (2) and (4) experience severe contamination issues and treats them similarly.

5A.4 Reducing Contamination in the Sample of Same-Sex Couples

The sample flow diagram in Figure A2 illustrates how I selected a final sample of married same-sex couples to minimize the potential contamination in Quadrants (2) and

[33]Additionally, the contamination issue is potentially minimal in the internet responses. Only 8% of *married* same-sex couples using the internet response option in the 2013 ACS were opposite-sex couples miscoding sex after comparing reported sex to probable sex based on the first name directory, where a name is probably male if it was reported as male 95% of the time and probably female if it was reported as female 95% of the time (Lofquist 2015).

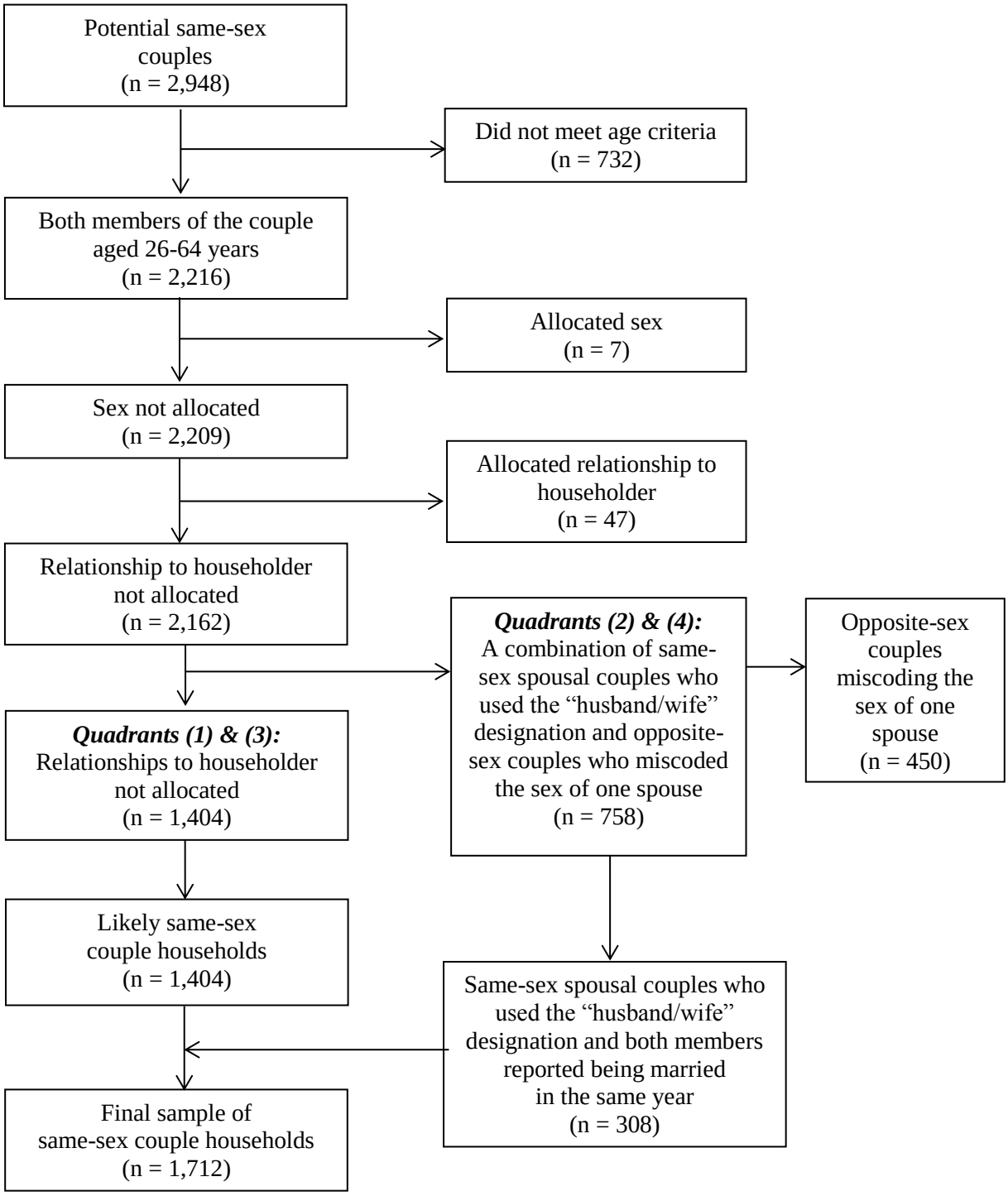
(4). First, my analytic sample was restricted to same-sex and opposite-sex couples where both members were between 26 and 64 years of age to account for Medicare coverage starting at age 65 and provisions in the Affordable Care Act allowing parents to keep adult children on employer health plans until the age of 26 (Sommers *et al*. 2013). Next, I excluded all same-sex and opposite-sex couples where at least one member was allocated sex or relationship to the householder because of missing or inconsistent information (Badgett and Schneebaum 2015). Sex and relationship to the householder was assigned by a Census Bureau algorithm when there was missing or inconsistent information in the original responses. Therefore, I assumed data were unreliable when one member was allocated sex or relationship to the householder.

I assume partnership status was reported with fewer contamination errors for the 1,404 same-sex couples using the "unmarried partner" response, which represented same-sex couples from Quadrants (1) and (3) in Figure A1. Remember, Kreider & Lofquist's (2015) comparison of the 2010 ACS to Social Security administrative records on sex indicates that approximately 93% of this sample is comprised of credible unmarried same-sex couples. The 758 same-sex couples from Quadrants (2) and (4) represent a combination of married same-sex couples who used the "husband/wife" designation and married opposite-sex couples who miscoded the sex of a spouse. Removing this entire group from the analysis, however, potentially eliminates a substantial portion of the treatment group affected by New York's Marriage Equality Act.

To identify a sample of married same-sex couples at lower risk of contamination, I took advantage of information on when the primary respondent reported the year in which each member was last married. I used marital history data for each person to check

whether members in a married same-sex relationship reported the same marital year. Of the 758 married same-sex couples, 300 couples were missing marital history data, 26 couples were "allocated" marital history, and 124 couples reported discordant marital years—all of which potentially represents incomplete or misreported information from married opposite-sex couples. Without complete and inconsistent marital information, I cannot decipher whether these are married same-sex couples (n=450), so I do not include them in the analysis presented here.

Figure A2 Flow diagram for the selection of the final sample of same-sex couples in New York from the 2008-2013 American Community Survey

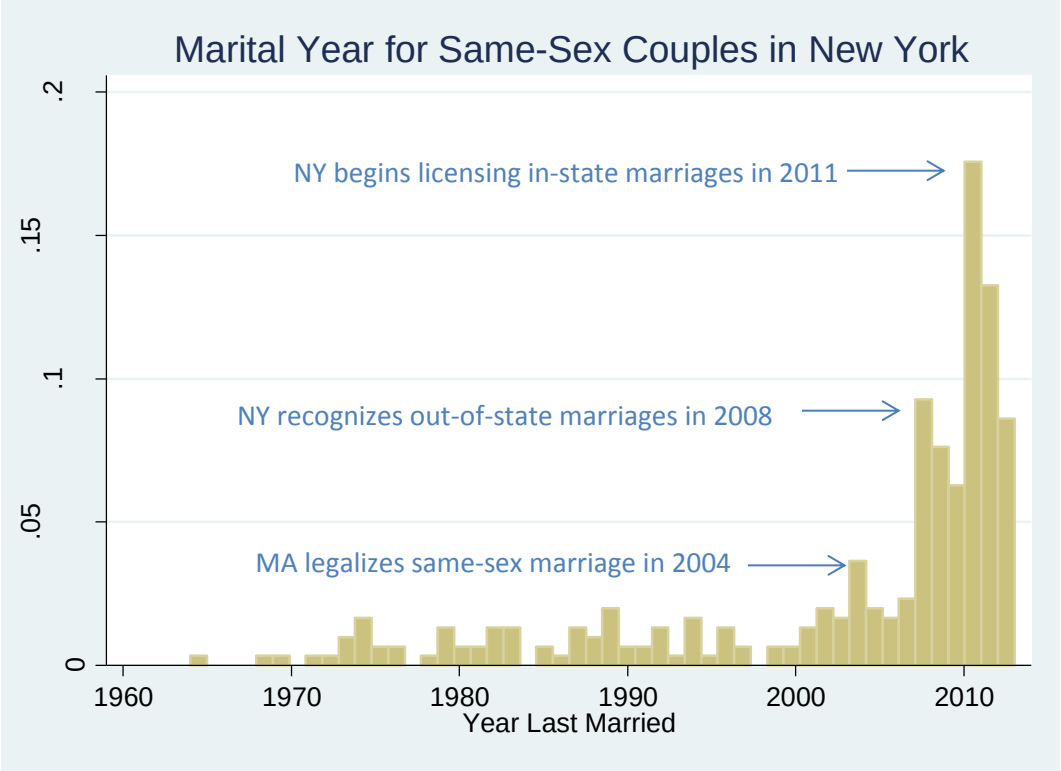


Note: The sample size, "n", indicates the number of cohabiting same-sex couples in New York (there are two adults in a same-sex couple in each same-sex household). Source: 2008-2013 American Community Survey.

Of the remaining 308 married same-sex couples using the "husband/wife" category with concordant marital histories, approximately 9% reported getting married in 2008, the year New York recognized out-of-state marriage licenses—and this represented a major surge to previous years (Figure A3). Similarly, over 15% of the same-sex couples with concordant marital histories reported getting married in 2011, the year the Marriage Equality Act was passed in New York. Only 30% reported getting married prior to 2004, when Massachusetts became the first state to legalize same-sex marriage. This technical appendix assumes that the 308 same-sex couples with concordant marital histories are plausible married same-sex couples in New York, or same-sex couples considering themselves married in the 2008-2013 ACS.[34] I also assume 450 of the 758 married same-sex couples excluded (59% of all same-sex couples using the "husband/wife" designation) represent inaccurate and miscoded opposite-sex couples from Quadrants (2) and (4). Therefore, my final sample included 1,712 cohabiting same-sex couples in New York.

[34] The annual sample sizes for the 308 married same-sex couples are as follows: 13 in 2008, 20 in 2009, 14 in 2010, 18 in 2011, 39 in 2012, and 204 in 2013. Changes to the 2013 ACS (edits to married same-sex couples and adding an internet response option) and the repeal of DOMA in June 2013 may have led more same-sex couples to marry and/or report their relationships.

Figure A3 Year last married among same-sex couples in New York when both members reported the same year of marriage



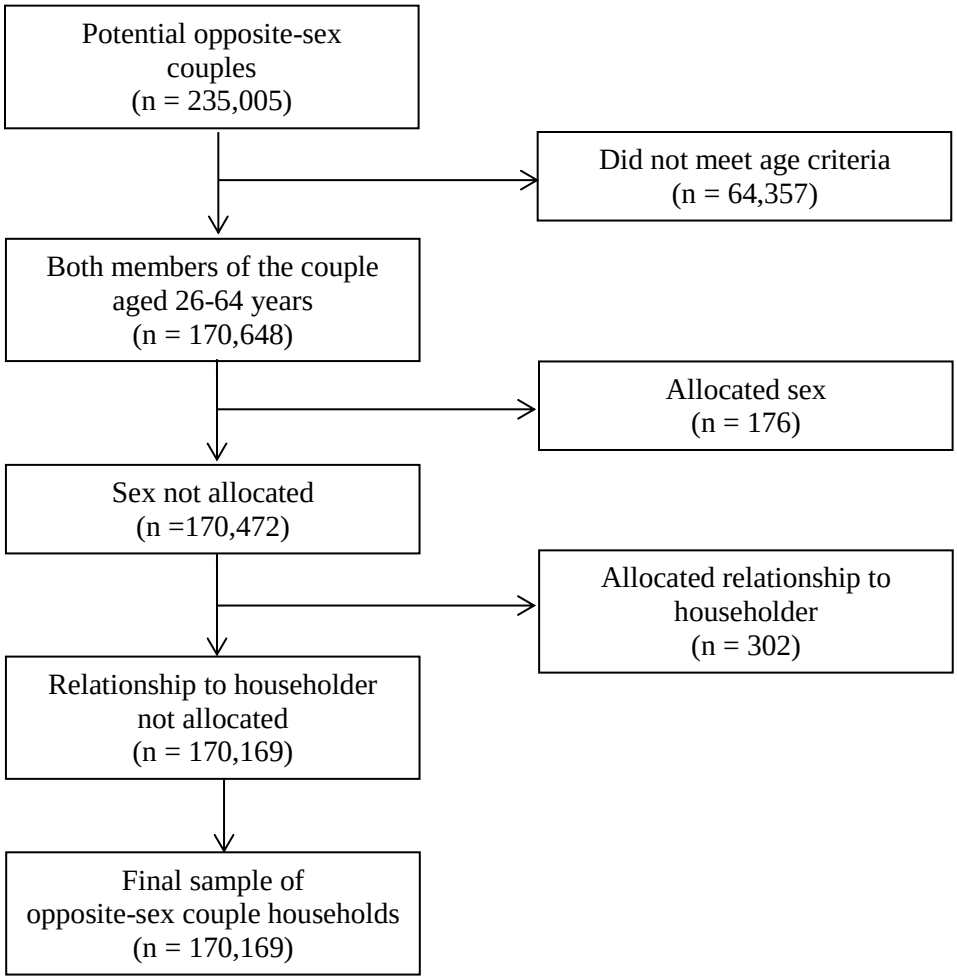
Source: 2008-2013 American Community Survey

5A.5 Primary Comparison Group: Opposite-Sex Couples in New York

I compare health insurance outcomes to an in-state comparison group unaffected by New York's Marriage Equality Act: cohabiting opposite-sex couples residing in New York. The sample flow diagram in Figure A4 illustrates how I selected the final sample of opposite-sex couples. Opposite-sex couples were excluded if they did not meet the age criteria or one member was allocated sex or relationship to the householder (similar to the sample of same-sex couples). My sample of opposite-sex couples does not include the 450 "same-sex" couples from Figure A2 who potentially miscoded sex, was missing marital history data or reported discordant martial history compared to their partner. The

final sample of opposite-sex couples includes married and unmarried couples to be consistent with the sample of same-sex households. Distinguishing legally married and unmarried same-sex households is problematic, since same-sex couples use the "husband/wife" categories based on evolving sociological and legal definitions (Gates 2010) and distinguishing legally married same-sex couples from unmarried same-sex couples is not possible in the public use files (Krieder and Lofquist 2015). Additionally, some workplaces voluntarily offer health benefits to unmarried same-sex couples over the study period (Kaiser 2014). Therefore, for consistency, my sample of opposite-sex couples includes married and unmarried opposite-sex couples. My final sample included 170,169 opposite-sex households in New York.

Figure A4 Flow diagram for the selection of a final sample of opposite-sex couples in New York from the 2008-2013 American Community Survey



Note: The sample size, "n", indicates the number of cohabiting opposite-sex couples in New York (there are two adults in an opposite-sex couple in each opposite-sex household). *Source: 2008-2013 American Community Survey.*

5A.6 Data and Study Limitations

5A.6.1 Missing Information on Sexual Orientation and Same-Sex Couples

This study has a number of limitations. My method of identifying same-sex couples does not verify the sexual orientation of the sample. Although I assume that people in cohabiting same-sex couples are lesbian, gay and bisexual (LGB), bisexual adults are missing from this analysis if they were in an opposite-sex couple during the survey period. Knowing sexual orientation would also facilitate studying single LGB adults and partnership patterns over time. Specifically, knowing sexual orientation would allow me to rule out whether the Marriage Equality Act increased cohabitation among LGB adults, which raises major endogeneity issues for this study. Since marriage provides substantial financial benefits beyond health insurance, the Marriage Equality Act may have increased the likelihood of marrying, cohabitating and self-reporting a same-sex relationship in the post-treatment period, and the changing composition of same-sex couples in the post-treatment period may be driving the results. Previous research by Buchmueller & Carpenter (2012) found California's domestic partnership law increased partnership by 7.6 percentage points for lesbian women (a similar effect was not found for gay men).

Additionally, data on same-sex couples in the ACS are limited to the primary householder (sometimes referred as the household head) and the householder's partner (husband, wife or unmarried partner). Although the selection of households in the ACS is designed to be nationally representative, the identity of the primary respondent is not random. The primary respondent is most often "the person living or staying here in whose name this house or apartment is owned, being bought, or rented." The primary

respondent is likely to have different characteristics than other adults living in households, including higher levels of employment, income and education (all of which may bias health insurance coverage estimates upward). Not only is the primary respondent not a randomly selected member of the household, but all members in the household are only asked of their relationship to the primary householder—and not to each other. Therefore, not only is this study missing same-sex couples not cohabiting together, but this study is missing same-sex couples unrelated to the primary respondent. However, there may not be many missing same-sex couples cohabiting together in households and not in a relationship with the primary householder. Based on a national sample of 1,623 (unweighted) same-sex couples in the 2010-2013 CPS-ASEC (which ascertains the identity of a spouse or unmarried partner for each person in the household), only 2.5% of all same-sex couples were not partnered with the household head (based on my calculations).

Finally, this study is missing same-sex couples choosing not to disclose their relationship or using alternative relationship responses, such as roommates or unrelated adults. Discrimination and stigma may lead some same-sex couples not to disclose their relationships in federal surveys or to interviewers in CATI/CAPI surveys, especially in regions with high levels of stigma and discrimination. People who choose not to disclose their sexual orientation in surveys (Kim & Fredriksen-Goldsen 2013) or in the workplace (Badgett 1996) tend to be racial and ethnic minorities and low-income workers. Therefore, same-sex couples not disclosing their relationship in the ACS may be socioeconomically disadvantaged, and leaving this group out may underestimate the

relationship between sexual orientation and health insurance coverage at the lower end of the socioeconomic spectrum.

5A.6.2 Limited Generalizations from New York to Other States

This study focuses on New York, which is unique in terms of the size and representativeness of the general population, the LGBT population and cohabiting same-sex couples, especially since so much of the state and the LGBT population lives in the New York City area. According to the 2010 decennial Census, there were approximately 19.4 million people in New York, making it the third most populous state (U.S. Census 2015). Meanwhile, approximately 43% of the state's population lives in New York City (NYC Department of City Planning 2015). People in New York also enjoy high levels of income—the median household income in New York is $55,000 (the 16th highest state in the U.S.) [U.S. Census Bureau 2015]. The population is also more racially and ethnically diverse compared to the rest of the country. Only 57% of New York is non-Hispanic White compared to 62% of the country (U.S. Census 2015). Moreover, the economy and health care industry in New York is not comparable to most states. New York has the third largest economy in the United States based on gross state product, after California and Texas. In terms of health insurance coverage, New York maintained a relatively low uninsurance rate prior to the passage of the Affordable Care Act. In 2009, only 13% of people under 65 years of age were uninsured in New York compared to 17% in the United States (Robert Wood Johnson Foundation DataHub 2015). Given these unique features of New York, making generalizations and finding an adequate comparison state is extremely challenging.

In regards to health insurance coverage among same-sex couples, employers in the Northeast are more likely to cover same-sex partners compared to other regions. According to the 2012 Employer Health Benefits Report sponsored by the Kaiser Family Foundation, approximately 54% of firms offering health benefits in the Northeast extended coverage to same-sex partners in 2012 (Claxton *et al*. 2012). Only 15% of firms in the South, 34% of firms in the Midwest, and 36% of firms in the West covered same-sex partners (Claxton *et al*. 2012). It remains uncertain what percentage of companies in New York covered same-sex partners prior to the Marriage Equality Act, but it's likely to be above the national average. Given varying health insurance industries across the country, it may be difficult to generalize the findings presented here to other states, but I would hypothesize that the impacts of same-sex marriage laws on ESI coverage in same-sex households could be larger in states where more employers would be required to cover same-sex spouses.

There are other methodological limitations to using New York as the treatment state for the study of same-sex marriage. First, New York State recognized same-sex marriage licenses obtained outside the state beginning in 2008, when the New York Court of Appeals ruling in *Martinez v. County of Monroe* required the state to recognize same-sex marriages performed in another state or country. This decision meant that New York State (and fully-insured employers) had to recognize same-sex marriage licenses obtained from nearby states (e.g. Connecticut, Massachusetts, New Hampshire and Vermont) or other countries (e.g. Canada, the Netherlands, Belgium, Spain and South Africa) that already implemented same-sex marriage. Between 2008 and 2011, New York was the only state to recognize same-sex marriages conducted outside of New York while

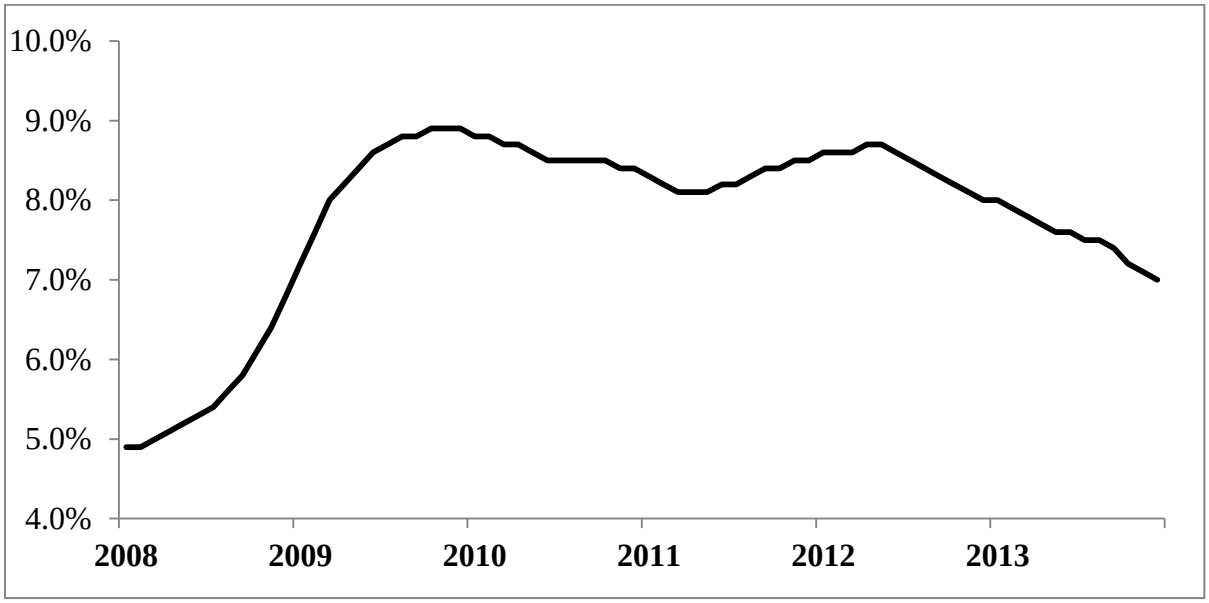
denying same-sex marriage licenses inside the state. This method of implementation is rare. Very few states recognized out-of-state same-sex marriage licenses prior to authorizing same-sex marriages in-state. To the extent that same-sex couples in New York traveled to other jurisdictions to obtain marriage licenses, the results in this study may be biased downward. If many same-sex couples obtained marriage licenses in Canada or in a nearby state after 2008, the policy change itself would affect fewer same-sex couples and households.

5A.6.3 Changing Economy, Societal Attitudes and Data Collection Over Time

This technical appendix uses cross-sectional data from the 2008-2013 American Community Survey (ACS) and a difference-in-differences (DD) framework to measure the differential impact of New York's Marriage Equality Act on health insurance coverage in same-sex households. One risk to relying on a pre-post design, including a DD framework, is that other factors—beyond the Marriage Equality Act—changed during the study period which may have affected health insurance outcomes and the composition of self-reported same-sex couples. For example, the 2007-2009 economic recession coincided with the period immediately preceding the passage of the Marriage Equality Act. Between December 2007 and June 2009, approximately 8.7 million jobs were lost during the economic downturn in the United States, and as many as 5 million people lost ESI nationally due to unemployment or declining incomes (Holahan 2011). Figure A5 illustrates the impact of the recession on statewide unemployment rates in New York during the study period. The unemployment rate in New York increased from 4.9% in 2008 to 8.9% at the beginning of 2010. Given the rapid increase in unemployment before 2010, many people (and their partners) in New York likely lost

their jobs and their access to ESI, and the relatively unstable economy in 2008 and 2009 may explain transitions in ESI during this period. This study includes data from 2008 and 2009, because I assume all households were affected by the economic recession similarly, but problems arise if the recession affected the treatment group differently than the comparison groups.

Figure A5 Statewide Unemployment Rates in New York



Source: U.S. Department of Labor, Bureau of Labor Statistics

This study does not include data from 2013 in the analysis for several reasons. First of all, changes in the ACS data collection break the consistent nature of the ACS. For example, the ACS implemented an internet response option in 2013, and approximately 29% (based on my calculations) of all households in New York responded using the internet response mode in 2013. Cohabiting same-sex couples may be more likely to report their sexual minority status over the internet compared to CATI/CAPI and

mail response modes. The anonymity associated with submitting answers online may lead some same-sex couples to report their relationships. Additionally, respondents using the internet option may be demographically different from respondents using the CATI/CAPI and mail response modes in previous surveys.

Changes in editing same-sex households in the 2013 ACS also make it difficult to compare same-sex households over time. Specifically, the U.S. Census Bureau stopped editing same-sex households using the "husband/wife" response category to "unmarried partners." The Census Bureau now maintains same-sex households using the "husband/wife" response option and imputes missing information on age and relationship status as same-sex couples if the respondents' first names have a high probability of being the same sex (Lofquist 2015).

Changes in federal law in 2013 may also be associated with more same-sex couples marrying, cohabitating and reporting their same-sex relationship status. In June 2013, the U.S. Supreme Court ruled section 3 of the Defense of Marriage Act (DOMA), which defined marriage between one man and one woman, unconstitutional in *United States v. Windsor*. Subsequently, same-sex couples gained immediate incentives to marry since the federal government recognized their unions. Indeed, administrative data on same-sex marriages in Connecticut, New Hampshire, and Vermont suggests that nearly twice as many same-sex couples married in 2013 than in 2012; the number of same-sex marriage licenses in New York was also slightly higher in 2013 than in 2012 (Badgett & Mallory 2014). Thus, the *Windsor* decision may have independently led more same-sex couples to get married, cohabitate and report their relationship status in the ACS, which would have caused more compositional problems in the 2013 ACS.

Finally, changes in attitudes and public opinion on homosexuality, LGBT people and same-sex marriage dramatically shifted over the study period. For instance, in May 2008, only 40% of Americans believed that marriages between same-sex couples should be valid with the same rights as traditional marriages (McCarthy 2015), and only Massachusetts licensed same-sex marriages (Connecticut and California would issue same-sex marriages later in the year). By 2013, 16 states issued same-sex marriage licenses; the federal government recognized those marriage licenses following the *Windsor* decision; and 54% of Americans believed that same-sex marriages should be valid. As laws, attitudes and opinions changed over time, LGBT people may be more likely to report their same-sex relationships in the ACS, and the results in this study may be driven by changing population compositions, especially if same-sex couples in the 2012-2013 ACS were demographically different from those in the 2008-2010 ACS.

I find mixed evidence that more male and female same-sex couples reported their same-sex relationship over time. The percentage of male same-sex households in the final sample remained between 0.76% and 0.98% between 2008 and 2012 (Table A1). In 2013, the percentage of households headed by cohabiting male same-sex couples increased to 1.43%, which coincided with changes in the ACS data collection and federal policy. Meanwhile, male same-sex households in 2013 were significantly less likely to be white and more likely to have children in the household compared to male same-sex households in 2008. Disregarding 2013, male same-sex households are slightly less likely to be white (or both white) in 2012, which may bias the impact estimates on ESI coverage downward, since non-white adults may be less likely to have jobs that offer health insurance (Zuvekas & Taliaferro 2003).

Female same-sex households in New York (Table A2) made up a smaller percentage of households in 2010 and 2011 (less than 1%) compared to opposite-sex households (Note: the sample size for female same-sex households was smallest in 2011). The percentage of female same-sex households was statistically similar in 2012 (1.08%) relative to the beginning of the period (1.34%), but female same-sex households in 2012 were less likely to be white (or both white), less likely to live in New York City and less likely to own their home. These compositional changes in the post-treatment period suggest that more disadvantaged—not advantaged—same-sex couples were more likely to report their same-sex relationship status following the implementation of the Marriage Equality Act, which may bias the impacts on ESI coverage downward, since they are less likely to have access to ESI or are able to afford premiums for ESI.

Table A1 Characteristics of male same-sex couples in New York over the study period

	2008		2009		2010		2011		2012		2013	
Sample size of male same-sex couples	150		144		138		119		135		219	
Percent same-sex couples vs opposite-sex couples	0.91%		0.85%		0.76%		0.76%		0.98%		1.43%	**
Age of householder	45.6		42.8	**	44.0		45.8		46.0		45.2	
Highest educational attainment: college degree	83.4%		86.0%		84.2%		86.2%		75.3%		86.2%	
Couple's combined income ≥ $100,000	73.1%		64.2%		65.5%		63.1%		70.0%		71.4%	
Any member working full-time	91.4%		92.6%		92.3%		83.2%		91.7%		91.3%	
Both members working part-time	2.3%		3.0%		0.6%		5.0%		5.4%		3.0%	
Householder is white	88.1%		82.3%		79.6%	*	85.6%		77.9%	*	73.1%	**
Both members white	75.9%		70.0%		67.1%		61.0%	**	64.5%	*	57.2%	**
Any member non-citizen	10.3%		10.5%		19.6%	*	13.1%		9.8%		13.7%	
Any member disabled	5.8%		5.9%		5.9%		14.7%	*	4.1%		6.0%	
New York City MSA residence	76.6%		77.0%		79.5%		78.1%		75.0%		78.5%	
Homeownership: owned free and clear or with mortgage or loan	68.0%		57.5%		53.7%	**	64.1%		62.9%		59.5%	
Homeownership: rented	31.8%		41.4%		46.3%	**	35.9%		37.1%		39.6%	
Any children in household	6.6%		4.8%		6.4%		6.0%		4.5%		13.0%	*
Any adults > 65 years in household	3.3%		0.1%	*	2.3%		1.3%		1.4%		1.8%	
Migrated from out of state within past year	0.4%		2.8%		0.0%		2.1%		1.4%		2.5%	*

Notes: The year-specific sample of same-sex couples is significantly different from the 2008 sample at *p<.10 or **p<.05. Household weights and data on the primary householder were used in the calculation of these estimates. Source: 2008-2013 American Community Survey.

Table A2 Characteristics of female same-sex couples in New York over the study period

	2008		2009		2010		2011		2012		2013	
Sample size of female same-sex couples	141		125		124		106		124		187	
Percent same-sex couples vs opposite-sex couples	1.34%		1.09%		0.99%	**	0.87%	**	1.08%		1.35%	
Age of householder	44.2		45.9		45.4		45.9		44.4		45.0	
Highest educational attainment: college degree	79.6%		72.5%		75.9%		73.3%		75.6%		67.5%	**
Couple's combined income ≥ $100,000	59.6%		46.4%	*	45.8%	*	50.1%		47.9%		50.0%	
Any member working full-time	85.5%		84.3%		82.0%		86.1%		89.9%		82.2%	
Both members working part-time	9.3%		0.8%	**	5.3%		3.1%	*	2.7%	*	5.4%	
Householder is white	80.5%		83.6%		83.5%		76.4%		65.3%	**	75.7%	
Both members white	72.6%		78.1%		75.7%		67.8%		55.5%	**	70.1%	
Any member non-citizen	4.4%		6.9%		5.7%		8.0%		6.5%		8.0%	
Any member disabled	8.3%		13.8%		11.2%		9.8%		14.3%		13.0%	
New York City MSA residence	67.6%		51.6%	**	56.9%	*	62.6%		54.2%	*	66.2%	
Homeownership: owned free and clear or with mortgage or loan	75.3%		71.7%		65.7%		68.4%		58.4%	**	63.1%	*
Homeownership: rented	24.7%		27.7%		34.3%		30.9%		39.6%	**	36.5%	*
Any children in household	22.9%		25.0%		29.4%		20.4%		31.2%		32.4%	
Any adults > 65 years in household	1.9%		1.7%		4.2%		2.3%		0.3%		3.1%	
Migrated from out of state within past year	3.9%		2.3%		1.5%		0.8%		2.7%		2.0%	

Notes: The year-specific sample of same-sex couples is significantly different from the 2008 sample at *p<.10 or **p<.05. Household weights and data on the primary householder were used in the calculation of these estimates. Source: 2008-2013 American Community Survey.

5A.7 The Comparison Group as a Counterfactual

The key assumption underlying a difference-in-differences (DD) framework is that the trends over time for the comparison groups provide the counterfactual for what would have happened in the absence of the Marriage Equality Act in New York (Angrist & Pischke 2009). Opposite-sex couples in New York are the preferred comparison group, since they are exposed to the same economic, political, and social environment over time (as well as health insurance industry and access to Medicaid) as same-sex couples in New York.

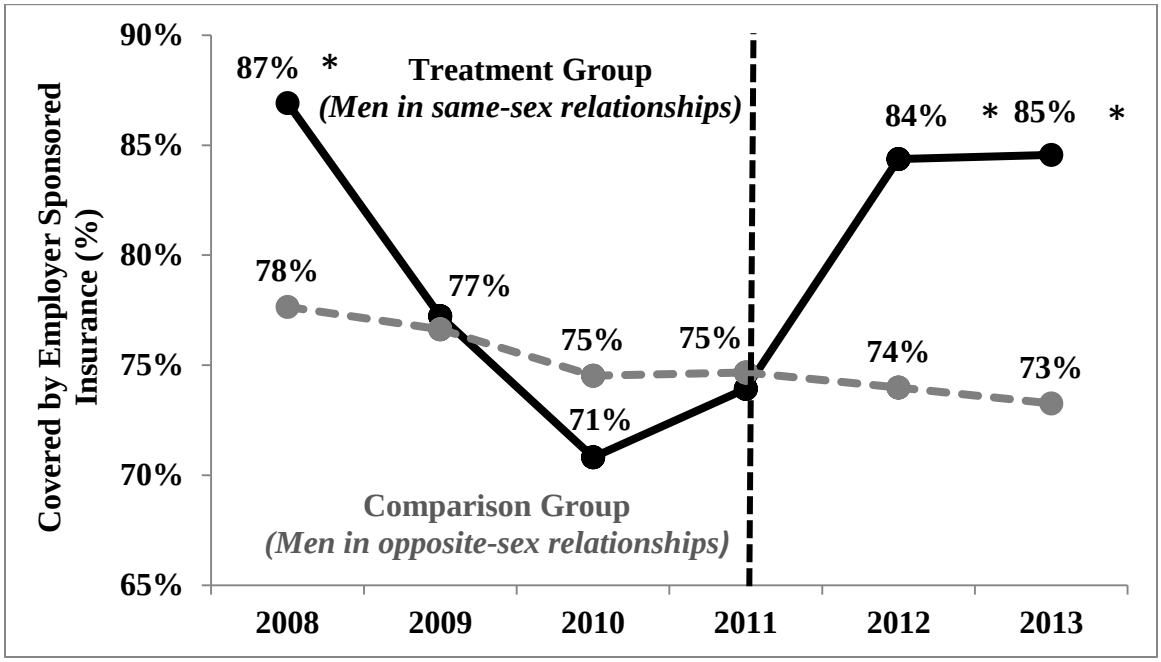
An important step in using a difference-in-differences framework is to demonstrate that the treatment and comparison group share parallel trends in the pre-treatment period. Figure A6 presents trends in ESI coverage for individual adults in cohabiting same-sex couples, and figure A7 presents trends in both members having ESI. With the exception of 2008, New York men in same-sex couples shared a similar trend in ESI coverage to New York men in opposite-sex couples (Figure A6, Panel A). Following the implementation of the Marriage Equality Act in 2011, ESI coverage increased to 85% for men in same-sex couples. Meanwhile, New York women in same-sex couples also experienced parallel trends in ESI coverage over time with New York women in opposite-sex couples, and there was a slight increase in ESI coverage for women in same-sex couples in 2011. However, ESI coverage continued to decline for both New York women in same-sex couples and opposite-sex couples.

Figure A7 presents the trends in both members having ESI between same-sex households and opposite-sex households. Dual ESI coverage declined for male same-sex households between 2008 and 2010, but then began to increase after 2011, from 62% to

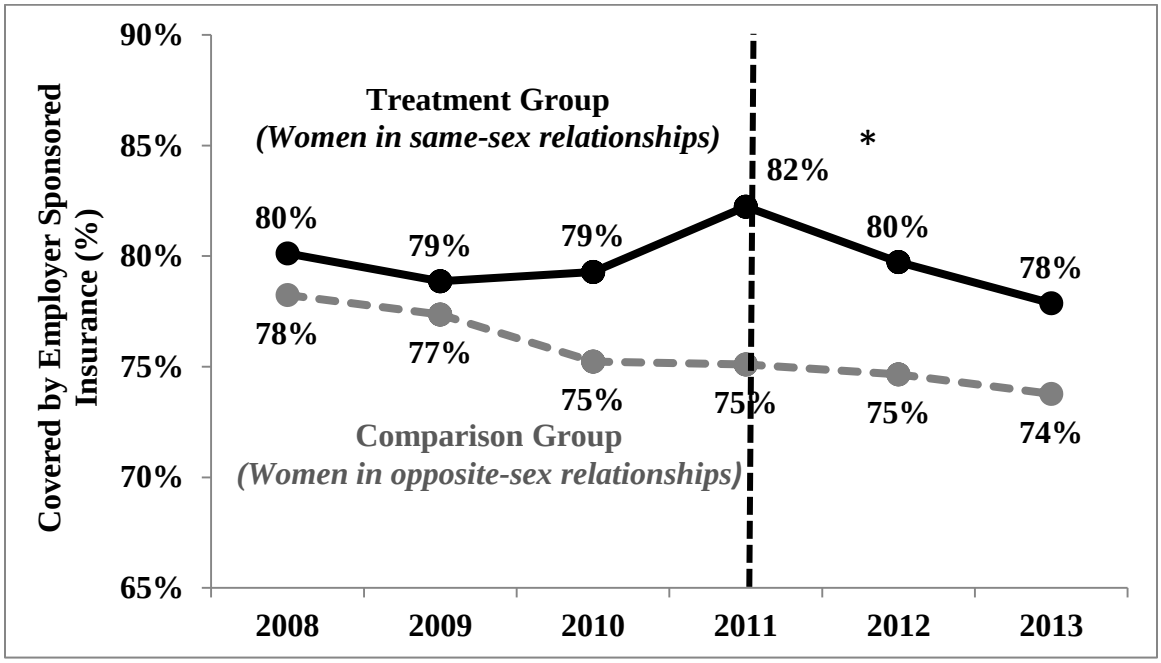
78% (Figure A7, Panel A). Interestingly, dual ESI coverage for both women in same-sex households was approximately the same over time as ESI coverage for both members in opposite-sex households (Figure A7, Panel B). So why did the pre-treatment trend in ESI coverage for male same-sex households fall so quickly and were very different from female same-sex households and opposite-sex households? One plausible hypothesis is that the economy affected male same-sex households differently than other households (i.e. a history issue). For instance, the types of jobs gay and bisexual men in cohabiting same-sex couples are likely to hold may have been affected by the economic recession more than the sectors where heterosexual and lesbian workers work. During the recession, gay and bisexual male workers may have been unable or reluctant to add their same-sex partners to ESI for fear of losing their job. Either the economic recovery may have helped increase ESI coverage for gay and bisexual men returning to work, or the increases in ESI were due to the passage of the Marriage Equality Act. This is one instance where knowing the specific source of ESI (primary policy holder versus dependent on another person's health plan) would be help explain this pattern.

Figure A6 Percent Covered by Employer-Sponsored Insurance (ESI) Before and After New York's Marriage Equality Act, by Sex

A. Men



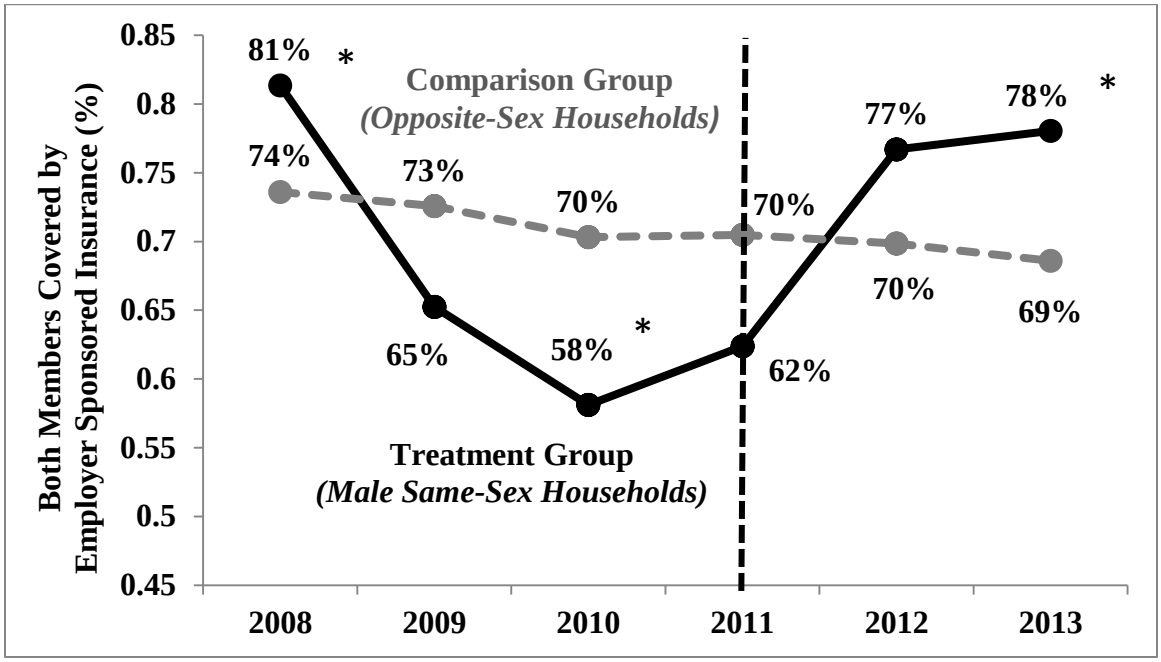
B. Women



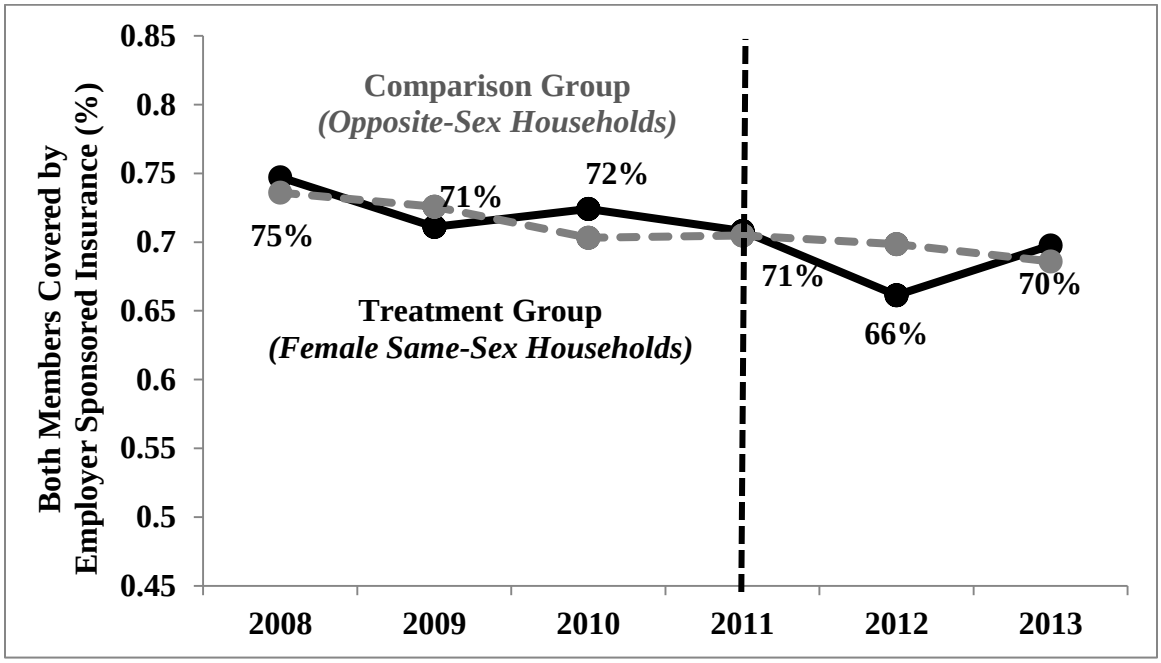
Data are from an analysis of the 2008-2013 American Community Survey. The vertical line represents the year during which the Marriage Equality Act was implemented in New York. The reported percentage in employer-sponsored insurance (ESI) reflects post-stratification weighting and have not been adjusted for covariates. * indicates that estimates between the treatment group and comparison group are significantly different ($p<0.05$) in the same year; otherwise estimates are statistically similar.

Figure A7 Percent Both Members Covered by Employer-Sponsored Insurance (ESI) Before and After New York's Marriage Equality Act, by Sex

A. Men



B. Women



Data are from an analysis of the 2008-2013 American Community Survey. The vertical line represents the year during which the Marriage Equality Act was implemented in New York. The reported percentage of both members covered by employer-sponsored insurance (ESI) reflects post-stratification weighting and have not been adjusted for covariates. * indicates that estimates between the treatment group and comparison group are significantly different ($p<0.05$) in the same year; otherwise no significant difference.

5A.8 Regression-Adjusted Results

This section uses the sample defined in this this technical appendix to provide an alternative set of results estimating the impact of New York's Marriage Equality Act on health insurance coverage for individual adults in cohabiting same-sex couples and same-sex households in New York as separate units of observations (similar to the results presented in chapter 5). These estimates do not include data from the 2013 ACS given the changes in data collection and federal policy occurring in 2013. Table A3 presents the changes in health insurance coverage between New York adults in same-sex couples and New York adults in opposite-sex couples, and after adjusting for demographic and socioeconomic characteristics, ESI coverage increased 5.7 percentage points ($p<0.10$) for men in same-sex relationships relative to men in opposite-sex couples after the Marriage Equality Act. Meanwhile, at the household level (Table A4), dual ESI coverage (or both members having ESI) increased 8.1 percentage points for male same-sex households relative to opposite-sex households after the Marriage Equality Act (Table A4). These findings were only marginally significant ($p<.10$) in linear probability models without propensity score weighting. Similar results were not found for women in same-sex couples or female same-sex households in New York.

These results are consistent with the results presented in chapter 5, which found that the Marriage Equality Act was associated with increased ESI coverage for men and women in same-sex couples. However, these estimates and the review of compositional changes in the samples over time provide some important insights to the previous results. First, there is very little evidence that the composition of male same-sex households in New York changed in the 2008-2012 ACS. If anything, they were slightly less likely to

be white in 2012 (Table A1), which would bias the impact estimates downward, since racial and ethnic minorities are less likely to have ESI. Results in this technical appendix also suggest that ESI coverage increased (5.7 percentage points) for New York men in same-sex couples relative to New York men in opposite-sex couples. These findings support the results from chapter 5 that ESI coverage increased 4-7 percentage points for New York men in cohabiting same-sex couples relative to New York men in cohabiting opposite-sex couples. However, the findings for New York women in same-sex couples do not hold across samples. When comparing New York women in same-sex couples to New York women in opposite-sex couples in this technical appendix, I do not find that the Marriage Equality Act had a significant impact on ESI coverage for New York women in same-sex couples like I did in chapter 5. Therefore, the results for New York women in same-sex couples remain mixed and inconclusive at this point.

Table A3 Changes in Health Insurance Coverage After the Implementation of New York's Marriage Equality Act

	Treatment Group: NY Adults in Same-Sex Couples				Comparison Group: NY Adults in Opposite-Sex Couples				Unadjusted Difference-in-Differences		Regression Adjusted Difference-in-Differences without Propensity Score Weighting		Regression Adjusted Difference-in-Differences with Propensity Score Weighting	
	Before	After	Difference		Before	After	Difference		Percentage Points	(95% CI)	Percentage Points	(95% CI)	Percentage Points	(95% CI)
Men														
ESI Coverage	77.7	84.4	6.6	*	75.9	74.0	-1.9	***	8.5	(1.7, 15.4)**	5.7	(-0.3, 11.8)*	4.9	(-0.9, 10.8)
Other Coverage	14.0	8.9	-5.1	*	13.5	14.7	0.9	**	-6.0	(-11.5, -0.5)**	-4.3	(-9.4, 0.9)	-4.7	(-9.9, 0.4)*
Uninsured	8.3	6.8	-1.5		10.6	11.6	1.1	***	-2.6	(-6.7, 1.6)	-1.5	(-5.4, 2.4)	-0.2	(-4.4, 3.6)
Women														
ESI Coverage	80.1	79.7	-0.3		76.5	74.7	-1.8	***	1.5	(-5.9, 8.8)	2.8	(-3.6, 9.1)	1.6	(-4.3, 7.6)
Other Coverage	13.2	13.2	0.0		14.6	15.6	1.0	**	-1.0	(-7.5, 5.5)	-1.9	(-7.7, 3.8)	-1.6	(-7.1, 3.8)
Uninsured	6.8	7.1	0.3		8.9	9.7	0.8	**	-0.5	(-4.6, 3.6)	-0.8	(-4.8, 3.2)	0.0	(-3.6, 3.6)

Note: Regression adjusted difference-in-difference estimates are from linear probability models adjusting for age group, race/ethnicity, educational attainment, the couple's combined income, the presence of a child in the household, the presence of a person ≥65 in the household, citizenship, disability status, MSA residence and homeownership. *P<0.10; **P<0.05; ***P<0.001.

Source: 2008-2012 American Community Survey

Table A4 Changes in Household Health Insurance Coverage After the Implementation of New York's Marriage Equality Act

	Treatment Group			Comparison Group				Unadjusted Difference-in-Differences		Regression Adjusted Difference-in-Differences without Propensity Score Weighting		Regression Adjusted Difference-in-Differences with Propensity Score Weighting	
	NY Same-Sex Households			NY Opposite-Sex Households									
	Before	After	Difference	Before	After	Difference		Percentage Points	(95% CI)	Percentage Points	(95% CI)	Percentage Points	(95% CI)
Men													
Both Members Insured	86.2	87.9	1.6	87.1	85.8	-1.3	***	2.9	(-4.5, 10.4)	1.5	(-5.5, 8.6)	-0.7	(7.9, 6.5)
Both Members Insured by ESI	67.5	76.7	9.2	71.7	69.9	-1.9	***	11.0	(1.4, 20.7)**	8.1	(-1.0, 17.1)*	6.5	(-2.5, 15.5)
Women													
Both Members Insured	88.0	85.6	-2.4	87.1	85.8	-1.3	***	-1.1	(-9.3, 7.1)	-0.1	(-8.1, 7.9)	-2.4	(-9.9, 5.1)
Both Members Insured by ESI	72.5	66.1	-6.3	71.7	69.9	-1.9	***	-4.4	(-15.5, 6.7)	-2.3	(-12.0, 7.3)	-3.9	(-13.0, 5.3)

Note: Regression Adjusted difference-in-difference estimates are from linear probability models adjusting for age group, race/ethnicity, educational attainment, the couple's combined income, the presence of a child in the household, the presence of a person ≥65 in the household, citizenship, disability status, MSA residence and homeownership.

*P<0.10; **P<0.05; ***P<0.001.

Source: 2008-2012 American Community Survey

5A.9 Recommendations for Researchers Interested in Studying Same-Sex Couples

In the absence of richer data, which includes information on sexual orientation, the U.S. Census Bureau should continue its efforts to improve the measurement of same-sex households. For example, changing the design of the survey from horizontal panels (Figure A8) to vertical panels (Figure A9) in the 2008 ACS reduced the likelihood of misreporting sex (O'Connell and Lofquist 2009). Respondents were much less likely to misreport sex or select both sex responses—leaving the Census Bureau to allocate sex—when the male-female responses were place side-by-side. This change in the questionnaire design dramatically reduced the number of same-sex couples by 52% (O'Connell and Feliz 2011), but it's often credited as a major improvement in the collection of sex information in Census surveys (O'Connell and Lofquist 2009; Lofquist and Lewis 2015).

Additionally, the Interagency Working Group on Measuring Relationships in Federal Household Surveys should continue testing new questions to measure same-sex couples. A revised question on the relationship to the householder was tested in the 2013 ACS Design Test (Lewis 2014), and it included three changes. The revised question (1) moved the "unmarried partner" option from the 13th response item to the 2nd response item, (2) added a gender-neutral "spouse" option, and (3) split up the spouse and partner options for opposite-sex and same-sex couples. The revised relationship question in Figure A10 now includes the following options: opposite-sex husband/wife/spouse; opposite-sex unmarried partner; same-sex husband/wife/spouse; and same-sex unmarried partner.

While there are no current plans to add the revised relationship question to the ACS, since it requires additional ACS testing, the revised relationship question will be fully implemented in the 2015 American Housing Survey, the 2015 Annual Social and Economic Supplement to the Current Population Survey (CPS-ASEC), and the 2020 decennial Census (Lofquist and Lewis 2015). However, early evaluations—albeit with very small sample sizes—found continued inconsistencies with misreporting sex in the revised question (Lofquist and Lewis 2015; Lewis, Bates and Streeter 2015). Approximately 44% of respondents (n=16) reporting a same-sex husband, wife or spouse reported inconsistent sex information for the corresponding spouse (Lofquist and Lewis 2015).

Figure A8 Questions on sex, date of birth and relationship to the primary householder in the 2005-2007 ACS

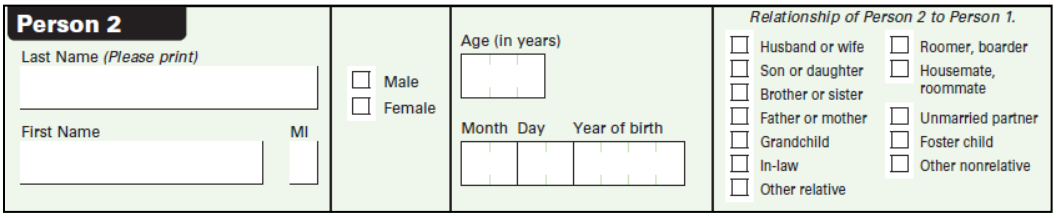


Figure A9 Questions on sex, date of birth and relationship to the primary householder in the 2008-2013 ACS

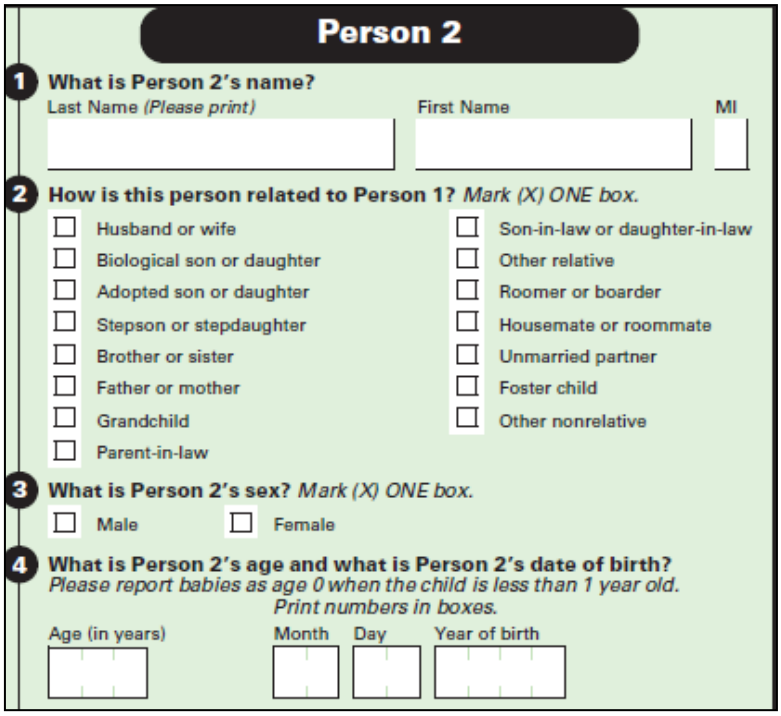
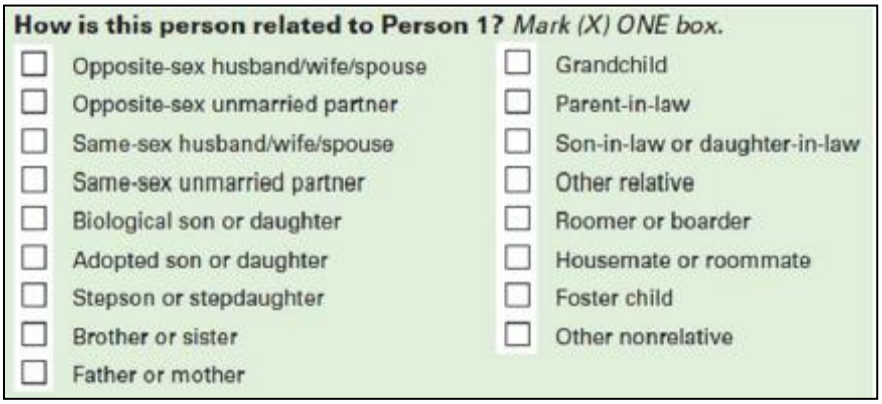


Figure A10 Revised relationship question in the 2013 American Community Survey Questionnaire Design Test (ACS-QDT)



Researchers using the ACS to study issues affecting cohabiting same-sex couples should take caution when interpreting their findings. First, researchers should be aware of the challenges involved with data collection and measurement. Cohabiting same-sex couples in the ACS may not be generalizable to the entire universe of same-sex couples, as they represent a subsample of household heads and their same-sex spouses and partners. Selection of the household head may not be random, since the household head is the person whose name the house or apartment is owned, being bought, or rented. Same-sex couples outside the household head may represent socially and economically disadvantaged populations and may have changed in size and composition through economic recessions and through evolving legal issues and societal attitudes on LGBT people. Additionally, same-sex couples reporting their sexual minority status in federal surveys must be understood in light of stigma and discrimination. The ACS is likely to measure same-sex couples who feel comfortable reporting their same-sex partners in a federal survey, and these same-sex couples are more likely to be white and highly educated compared to those who are single or do not report their sexual orientation (Carpenter & Gates 2008).

For researchers interested in using the ACS for their research, added precautions should be taken to address potential contamination issues. Researchers should not use data on *married* same-sex couples prior to the 2008 ACS—or at least not combine data over the 2007 and 2008 ACS given the changes in the 2008 ACS questionnaire (Figure A9). Moreover, researchers should not include in their sample any same-sex couple where one member was allocated sex or relationship to the primary householder, since

the missing data were imputed by the Census Bureau. For researchers interested in studying *married* same-sex couples using the "husband/wife" designation, researchers should restrict their analysis to couples married in the same year and carefully assess when they reported getting married. Although qualitative research demonstrates that same-sex couples who are legally married are more likely to use the "husband/wife" response categories in Census surveys (Gates 2010; DeMaio, Bates and O'Connell 2013), researchers should take extra steps to rid the sample of contamination. The method pursued here recommends confirming that both members in a *married* same-sex relationship consistently reported being married in the same year.

Finally, researchers should consider other federal surveys measuring sexual orientation, including the National Health Interview Survey (NHIS), which added sexual orientation in 2013 (Ward *et al.* 2014), and the Behavioral Risk Factor Surveillance System for some 25 states (Fenway Institute 2013). Although these surveys do a better job ascertaining sexual orientation for a random adult in the household, data may not be available at the state level or have the large sample sizes found in the ACS. For example, region (not state) is the lowest level of geography available in the public use NHIS data sets. Researchers can obtain approval from the National Center for Health Statistics to conduct state policy analyses in one of the Census Bureau's Research Data Centers to access restricted NHIS files, but researchers should expect to have information on no more than 23,000-36,000 sample adults across the United States randomly selected for detailed interviews. Researchers may be able to bypass issues common in the ACS and other federal surveys by using administrative records or marriage license registries managed by the states, but obtaining permissions to use these records may be difficult.

5A.10 Next Steps for Future Research

Future research will explore alternative research designs and strategies to overcome the issues and limitations in this project. For example, one problem in this paper is the issue of changing compositions of same-sex couples over time. As previously mentioned, the policy change itself—legalizing same-sex marriage—can change the composition of self-reported same-sex couples in the ACS following the policy implementation. To bypass this issue, instead of studying the *direct* effects of legalizing same-sex marriage on LGBT populations, researchers might study the effects of same-sex marriage laws on LGBT people *indirectly* by comparing changes in outcomes in one state adopting same-sex marriage to changes in outcomes in a similar state not adopting same-sex marriage—and attributing differential changes in the adoption state to changes in the LGBT population.

A difference-in-differences framework may still be implemented to detect small, statewide changes in outcomes of interest in a state implementing same-sex marriage, such as statewide marriage rates. The underlying assumption in this DD framework is that a similar comparison state provides the counterfactual for what would happen had the policy change never occurred in the treatment state. For instance, suppose that a researcher were interested in whether legalizing same-sex marriage in New York increased the marriage rate in the state. Using a DD framework, the researcher could compare marriage rates in New York to surrounding states with similar economies, demographics and attitudes on LGBT people, and changes in the marriage rate in New York may be attributed to the passage of the Marriage Equality Act in New York.

Another strategy may include using data that includes sexual orientation information in the National Health Interview Survey (NHIS). Beginning with the 2013 NHIS, one randomly sampled adult in each household was asked whether they were lesbian or gay, straight, bisexual or something else. I recommend using these data to explore health insurance disparities in LGB individuals and seeking permission from the National Center for Health Statistics (NCHS) to measure disparities in ESI by state policy environments, or whether the sample adult lives in a state recognizing same-sex marriage or not. One benefit to the NHIS is that the researcher can identify the specific source of ESI, such as whether the person is the primary policy holder or a dependent on another person's ESI plan. Another benefit to the NHIS is that it can be linked to the Medical Expenditure Panel Survey (MEPS), since the MEPS draws its sample from the NHIS. The MEPS includes important variables missing in the ACS, including whether a person works for a fully-insured employer and the firm size of the employer. While the ACS facilitated early explorations of health insurance disparities in a subset of the LGBT population, different research designs and new data resources will allow me to build upon my research agenda in the next stages of my career.

6. Conclusion

This dissertation introduced a preliminary conceptual framework to study the impact of state policies and state policy processes on health outcomes in target populations, such as health insurance coverage and access to care. Then, using data from the American Community Survey (ACS), this dissertation used three papers to document the impact of same-sex marriage laws on health insurance coverage in same-sex households. These studies were the first to (1) provide state-level estimates in employer-sponsored health insurance for adults in cohabiting same-sex couples; (2) estimate disparities in private health insurance coverage for children with cohabiting same-sex parents; and (3) measure the impact of legalizing same-sex marriage (rather than legalizing civil union or domestic partnerships laws) on changes in health insurance coverage for adults in cohabiting same-sex couples. While each study bears data limitations to making conclusive inferences and generalizations, each of the three manuscripts presented here consistently supports the finding that same-sex marriage laws were associated with narrower disparities and potential gains in employer-sponsored insurance (ESI) coverage.

These studies also illustrate the advantages and challenges to conducting research in the evolving policy context. Health and social policy is rapidly changing across the country, and states are major actors in these reforms and initiatives. During the study of this dissertation, states were implementing various forms of health reform, same-sex marriage, firearm regulation, and medical marijuana initiatives. As I discussed in chapter 1, the implementation of each state policy varies based on the state's political and economic climate, the framing of public programs in the media, the demographic and

health needs of the state's population, and the federal policies in place that set boundaries or the acceleration for what states can do. This preliminary conceptual model is a framework for researchers to examine the contextual factors in the policy process that drive state policies and their consequential population health outcomes.

Meanwhile, during the development of this project, various forms of same-sex marriage laws (including domestic partnerships, civil unions and legal same-sex marriage) rolled out across the country. By the start of 2015, 37 states legalized same-sex marriage—6 months later, *every* state in the country would be required to provide marriage licenses to same-sex couples. These policy changes—which extended substantial marriage benefits and protections to LGBT people—may have potential impacts on health and access to medical care for LGBT people and cohabiting same-sex couples. Parallel to the rapid diffusion of same-sex marriage laws was the rapid inclusion of sexual orientation questions to federal and state surveys and scientific advancements in measuring sexual orientation and same-sex couples in federal surveys. The three manuscripts presented in this dissertation illustrate the challenges to studying same-sex couples and LGBT populations in a rapidly shifting policy and "big data" world.

6.1 Policy Implications

Disparities in health and access to health care for LGBT people have recently been targeted for elimination by the Institute of Medicine and the *Healthy People 2020* initiative. This dissertation adds evidence to the growing body of research that finds same-sex marriage laws beneficial to a subset of the LGBT population: adults in cohabiting same-sex couples. While previous public health research found discriminatory environments and same-sex marriage bans detrimental to LGBT health outcomes

(Hatzenbuehler *et al*. 2010), more research demonstrates that legalizing same-sex marriage is associated with fewer mental health visits for gay men (Hatzenbuehler *et al*. 2012), reduced psychological distress among lesbian, gay and bisexual adults (Wight et al. 2013), and better self-reported health for adults in same-sex relationships (Kail, Acosta & Wright 2015).

In 2013, the United States Supreme Court ruled Section 3 of the federal Defense of Marriage Act (DOMA) unconstitutional, or specifically the provisions defining marriage between a man and a woman. In writing the opinion of the court, Justice Anthony Kennedy argued that DOMA prevented LGBT families and same-sex couples from achieving equity in health and health care:

> *"Under DOMA, same-sex married couples have their lives burdened, by reason of government decree, in visible and public ways. By its great reach, DOMA touches many aspects of married and family life, from the mundane to the profound. It prevents same-sex married couples from obtaining government healthcare benefits they would otherwise receive… DOMA also brings financial harm to children of same-sex couples. It raises the cost of health care for families by taxing health benefits provided by employers to their workers' same-sex spouses."*

This summer, the United States Supreme Court ruled that same-sex couples in the remaining 13 states were guaranteed the right to same-sex marriage under the United States Constitution in *Obergefell v. Hodges*. Now, same-sex couples across the country can enjoy the full rights and privileges to legal marriage. Not only will they be eligible

for the legal and financial protections associated with legal marriage, but same-sex couples may enjoy better health and access to health insurance and medical care.

6.2 Next Steps

The next steps of this research agenda will continue to explore and document how same-sex marriage laws affect the short- and long-term health outcomes in LGBT people. As states legalize same-sex marriage following the *Obergefell v. Hodges* Supreme Court decision, more data will be available to study these policy "experiments" in various settings. My future research questions will explore whether the results in New York (chapter 5) are comparable to legalizing same-sex marriage in states with political environments promoting discrimination against sexual minorities. For instance, I will explore whether the same results in New York are found in other states, particularly in the southern United States. Although some researchers might expect fewer LGBT workers in southern states to enroll their same-sex partners on employer health plans for fear of discrimination, many of these states maintain limited safety nets and are not expanding Medicaid under health reform. LGBT workers in the south may be more likely to enroll same-sex partners if uninsurance rates are higher among these couples.

Other research questions will explore different health outcomes available in other federal surveys. For example, I will begin to explore whether same-sex marriage improves *access* to medical care for LGBT people. While health insurance is one important determinant of accessing affordable health care, some LGBT people may continue to experience financial and social barriers to medical care. For example, the rising cost of medical care and high cost sharing provisions in some ESI health plans may prevent some people from obtaining medical care. Future research will examine whether

same-sex marriage laws improves access to care measures, including reductions in delayed or unmet medical care due to cost, maintenance of a usual source of care, provider discrimination and financial burdens to medical care.

Additional research will explore new data to examine the impacts of same-sex marriage laws on LGBT health outcomes. For instance, the National Health Interview Survey (NHIS) added a question on sexual orientation to the sample adult questionnaire in 2013. One randomly sampled adult in each household is now asked whether they are lesbian or gay, straight, bisexual or something else. To test whether health outcomes, including health insurance coverage and access to care, are better for lesbian, gay and bisexual (LGB) adults living in states recognizing same-sex marriage laws, I will request restricted access to the NHIS to divide the LGB sample by their state policy environment (state of residence is not included in the public use files). Meanwhile, I will explore whether cohabitating and being married affects physical and mental health outcomes for LGB adults in the NHIS. A large body of research consistently shows that married heterosexual adults live longer, heathier and happier lives. The new sexual orientation data included in the NHIS will all me to explore preliminary health patterns in LGB adults who report being married.

Other research will explore additional dimensions of the preliminary conceptual model in terms of same-sex marriage research. For example, very little research has examined how legalizing same-sex marriage affects the policy feedback loop. Now that same-sex couples can wed across the country, it is likely that LGBT advocates will seek other benefits and protections, including anti-discrimination laws protecting transgender populations in health care, employment and education. Meanwhile, it will be interesting

to observe how the political climate responds to legal same-sex marriage, particularly in the 2016 presidential election. As more same-sex couples choose to marry, it is possible that support for same-sex marriage will continue to grow, making it increasingly difficult for conservative policymakers and politicians to oppose same-sex marriage.

Finally, future research will apply the preliminary conceptual model to other examples of state health politics and policy. My research agenda will measure the impacts of state policies (health and non-health policies) on health outcomes in the populations targeted by developing state policy. For example, my research will take advantage of state variation in the rollout of state laws decriminalizing cannabis across the country. At the time of this writing, over half of the states have passed laws approving cannabis for medical use or decriminalized the sale and possession of marijuana for recreational use and retail sale. Understanding the politics and health outcomes associated with medical marijuana laws is very important, as more states (and the federal government) may consider decriminalizing marijuana for medical and recreational purposes in the foreseeable future. While early research shows that state marijuana laws have had limited effects on adolescent marijuana use (Lynne-Landsman, Livingston & Wagenaar 2013) and suicides in working age men (Anderson, Rees & Sabia 2014), there are ample research questions to explore with the state policy "experiments" surrounding the legalization of marijuana, including asthmatic outcomes associated with cannabis use in adolescents and substitution effects among adult cannabis users, or whether adults switch cigarette and alcohol use with marijuana.

6.3 Concluding Comments

This dissertation provides supporting evidence that same-sex marriage laws in the United States are associated with narrower disparities in health insurance coverage, particularly through employers for adults in cohabiting same-sex couples. During the writing of the three papers presented here, more states legalized same-sex marriage and two Supreme Court decisions helped pave the way for LGBT Americans and same-sex couples to marry in *all* 50 states and the District of Columbia. It important to note that this was once a policy objective that was considered politically infeasible in the United States, but state policymakers (including judges, legislators and governors) took risks and experimented with various forms of same-sex marriage laws one state at a time until same-sex marriage cascaded across the country. The risks taken by these state policy champions will have profound consequences on the policy process and health outcomes in committed same-sex couples and LGBT populations across the country. This dissertation demonstrates the importance of the state policy process and argues that we should focus on state policymaking. State policies not only affect the careers of the state policymakers who pursue specific policy objectives, but state policies have the potential to profoundly improve the lives and health of the people they affect.

7. Bibliography

Abadie A., Diamond A., Hainmueller J. 2010. "Synthetic Control Methods for Comparative Case Studies: Estimating the Effect of California's Tobacco Control Program." *Journal of the American Statistical Association* 105: 493-505.

Abadie A., Diamond A., Hainmuller J. 2014. "Comparative Politics and the Synthetic Control Methods." *American Journal of Political Science* 59: 495-510.

Abraham, J., P. Karaca-Mandic, M. Boudreaux. 2013. "Sizing Up the Individual Market for Health Insurance: A Comparison of Survey and Administrative Data Sources." *Medical Care Research and Review* 70(4): 418-433.

Acevedo-Garcia, D., L.C. Stone. 2008. "State Variation in Health Insurance Coverage for U.S. Citizen children of Immigrants." *Health Affairs* 27:434-446.

Aday, L.A., R. Andersen. 1974. "A Framework for the Study of Access to Medical Care." *Health Services Research* 9(3): 208-220.

Aday, L.A., R.M. Andersen. 1981. "Equity of Access to Medical Care: A Conceptual and Empirical Overview." *Medical Care* 19(12): 4-27.

Aizer, A. and J. Grogger. 2003. "Parental Medicaid Expansions and Health Insurance Coverage." NBER Working Paper No. 9907 [accessed on June 12, 2015]. Available at: http://www.nber.org/papers/w9907

Allen, S. "LGBT Leaders: Gay Marriage is Not Enough." *The Daily Beast*, June 26, 2015. Available at: http://www.thedailybeast.com/articles/2015/06/26/same-sex-marriage-is-legal-now-what.html

Allen, K.D. and T. Hendricks. 2013. *Medicaid and Children in Foster Care*. Hamilton, New Jersey: Center for Health Care Strategies, Inc. Available at: http://www.childwelfaresparc.files.wordpress.com/2013/03/medicaid-and-children-in-foster-care.pdf

Allen, K.D. and T. Hendricks. 2013. "Medicaid and Children in Foster Care" [accessed on July 21, 2015]. Trenton, NJ: Center for Health Care Strategies. Available at: https://childwelfaresparc.files.wordpress.com/2013/03/medicaid-and-children-in-foster-care.pdf

Andersen, R.M. 1995. "Revisiting the Behavioral Model and Access to Medical Care: Does it Matter?" *Journal of Health and Social Behavior* 36(1): 1-10.

Andersen, R.M. 2008. "National Health Surveys and the Behavioral Model of Health Services Use." *Medical Care* 46(7): 647-653.

Andersen, R.M. and P.L. Davidson. 2007. "Improving Access to Care in America: Individual and Contextual Indicators." In Changing the U.S. Health Care System, 3rd Edition, edited by R.M. Andersen, T.H. Rice and G.F. Kominski, pp. 3-31.

Angrist, J.D. and J.S. Pischke. 2009. *Mostly Harmless Econometrics: An Empiricist's Companion*. Princeton, NJ: Princeton University Press.

Appleby J. 2015. "Once, Same-Sex Couples Couldn't Wed; Now, Some Employers Say They Must." Kaiser Health News. Available at: http://khn.org/news/oncesamesexcouplescouldntwednowsomeemployerssaytheymust

Ash, M.A. and M.V.L. Badgett. 2006. "Separate and Unequal: The Effect of Unequal Access to Employment-Based Health Insurance on Same-Sex and Unmarried Different-Sex Couples." *Contemporary Economic Policy* 24: 582-599.

Badgett, M.V.L. 1995. "The Wage Effects of Sexual Orientation Discrimination." *Industrial and Labor Relations Review* 48(4): 726-739.

Badget, M.V.L. 1996. "Employment and Sexual Orientation: Disclosure and Discrimination in the Workplace." *Journal of Gay & Lesbian Social Services* 4(4): 29-52.

Badgett MVL. 2007. *Unequal Taxes on Equal Benefits: The Taxation of Domestic Partner Benefits* [accessed January 16, 2013]. Available at: http://williamsinstitute.law.ucla.edu/wp-content/uploads/Badgett-UnequalTaxesOnEqualBenefits-Dec-2007.pdf.

Badgett, M.V.L. 2010. "The Economic Value of Marriage for Same-Sex Couples." *Drake Law Review* 102(58): 1081-1116.

Badgett, M.V.L. and C. Mallory. 2014. "The Windsor Effect on Marriages by Same-Sex Couples." Los Angeles, CA: The Williams Institute. Available at: http://williamsinstitute.law.ucla.edu/wp-content/uploads/Badgett-Mallory-Windsor-Dec-2014.pdf

Badgett, M. V. L. and A. Schneebaum. 2015. "The Impact of Wage Equality on Sexual Orientation Poverty Gaps." Los Angeles, CA: The Williams Institute. Available at: http://williamsinstitute.law.ucla.edu/research/workplace/the-impact-of-wage-equality-on-sexual-orientation-poverty-gaps

Baicker, K., S.L. Taubman, H.L. Allen, M. Bernstein *et al*. 2013. "The Oregon Experiment—Effects of Medicaid on Clinical Outcomes." *The New England Journal of Medicine* 368(18): 1713-1722.

Bieler, G.S., G.G. Brown, R.L. Williams, and D.J. Brogan. 2010. "Estimating Model-Adjusted Risks, Risk Differences, and Risk Ratios from Complex Survey Data." *American Journal of Epidemiology 171(5): 618-623.*

Bernard, T. S. 2012. "When Gay Employees Can Enroll Spouses for Health Insurance." New York Times. Available at: http://bucks.blogs.nytimes.com/2012/02/21/when-gay-employees-can-enroll-spouses-for-health-insurance/?_r=0

Berry, W.D. and D. Lowery. 1987. "Explaining the Size of the Public Sector: Responsive and Excessive Government Interpretations." *The Journal of Politics* 49(2): 401-440.

Berry, F. S. and W.D. Berry. 2014. "Innovation and Diffusion Models in Policy Research." In Theories of the Policy Process, 3rd edition, edited by P.A. Sabatier and C.M. Weible, pp. 307-359. Boulder, CO: Westview Press.

Berkman, L.F. and I. Kawachi. 2000. *Social Epidemiology*. Oxford: Oxford University Press.

Besley, T. and A. Case. 2000. "Unnatural Experiments? Estimating the Incidence of Endogenous Policies." *The Economic Journal* 110: F672-F694.

Biblarz, T.J. and E. Savci. 2010. “Lesbian, Gay, Bisexual, and Transgender Families.” *Journal of Marriage and Family* 72(3): 480-497.

Black, D., G.Gates, S. Sanders, and L. Taylor. 2007. “The Measurement of Same-Sex Unmarried Partner Couples in the 2000 U.S. Census.” California Center for Population Research. Working Paper Series CCPR-023-07. Available at: http://papers.ccpr.ucla.edu/papers/PWP-CCPR-2007-023/PWP-CCPR-2007-023.pdf

Blewett L.A., M. Davern, H. Rodin. 2004. “Covering Kids: Variation in Health Insurance Coverage Trends by State, 1996-2002.” *Health Affairs*23:170-180.

Boehmer, U., D.J. Bowen, and G.R. Bauer. 2007. “Overweight and Obesity in Sexual-Minority Women: Evidence from Population-Based Data.” *American Journal of Public Health* 97: 1134-1140.

Borcherding, T.E. and R.T. Deacon. 1972. “The Demand for the Services of Non-Federal Governments.” *The American Economic Review* 62(5): 891-901.

Bostic, R.W., R.L. Thornton, E.C. Rudd and M.J. Sternthal. 2012. “Health in All Policies: The Role of the US Department of Housing and Urban Development and Present and Future Challenges.” *Health Affairs* 31(9): 2130-2137.

Boudreaux, M.H., K.T.Call, J. Turner, B. Fried and B. O’Hara. 2015. “Measurement Error in Public Health Insurance Reporting in the American Community Survey: Evidence from Record Linkage.” *Health Services Research,* published early online.

Boushey, G. 2010. *Policy Diffusion in America*. Cambridge: Cambridge University Press.

Bowleg, L. 2008. “When Black + Lesbian + Woman ≠ Black Lesbian Woman: The Methodological Challenges of Qualitative and Quantitative Intersectionality Research.” *Sex Roles* 59(5): 312-325.

Bowleg, L. 2012. “The Problem with the Phrase Women and Minorities: Intersectionality—An Important Theoretical Framework for Public Health.” *American Journal of Public Health* 102(7): 1267-1273.

Brief of 379 Employers and Organization Representing Employers as Amici Curiae in Support of the Petitioners [accessed September 4, 2015]. Available at: http://www.supremecourt.gov/ObergefellHodges/AmicusBriefs/14-556_379_Employers_and_Organizations_Representing_Employers.pdf

Brueckner, J. 2000. “Welfare Reform and the Race to the Bottom: Theory and Evidence.” *Southern Economic Journal* 66(3): 505-525.

Buchmueller, T. and C.S. Carpenter. 2010. “Disparities in Health insurance Coverage, Access, and Outcomes for Individuals in Same-Sex Versus Different-Sex Relationships, 2000-2007.” *American Journal of Public Health* 100: 489-495.

Buchmueller, T., and C.S. Carpenter. 2012. “The Effect of Requiring Private Employers to Extend Health Benefit Eligibility to Same-Sex Partners of Employees: Evidence from California.” *Journal of Policy Analysis and Management* 31(2): 388-403.

Buffie,W.C. 2011. “Public Health Implications of Same-Sex Marriage.” *American Journal of Public Health* 101:986-990.

Bureau of Labor Statistics. 2011. *Employee Benefits in the United States: March 2011*. Washington, DC: US Department of Labor [accessed on March 18, 2013]. USDL-11-1112. Available at: http://www.bls.gov/news.release/archives/ebs2_07262011.pdf

Cacari-Stone, L., N. Wallerstein, A.P. Garcia and M. Winkler. 2014. "The Promise of Community-Based Participatory Research for Health Equity: A Conceptual Model for Bridging Evidence with Policy." *American Journal of Public Health* 104(9):1615-1623.

Carpenter, C. and G. Gates. 2008. "Gay and Lesbian Partnership: Evidence from California." *Demography,* 45(3): 573-590.

Claxton, G. M. Rae, N. Panchel, A. Damico, J. Lundy, N. Bostick, K. Kenward, and H. Whitmore. 2012. *Employer Health Benefits: 2012 Annual Survey* [accessed on January 23, 2013]. Chicago, IL: Henry J. Kaiser Family Foundation and Health Research & Educational Trust.

Clift, J.B. and J. Kirby. 2012. "Health Care Access and Perceptions of Provider Care Among Individuals in Same-Sex Couples: Findings from the Medical Expenditure Panel Survey." *Journal of Homosexuality* 59(6): 839-850.

Committee on Psychological Aspects of Child and Family Health. 2002. "Coparent or Second-Parent Adoption by Same-Sex Parents." *Pediatrics* 109:339-340.

Committee on Psychological Aspects of Child and Family Health. 2013. "Promoting the Well-Being of Children whose Parents are Gay or Lesbian." *Pediatrics* 131:827-830.

Congressional Budget Office. 2004. "The Potential Budgetary Impact of Recognizing Same-Sex Marriages" [accessed August 28, 2015]. Available at: https://www.cbo.gov/sites/default/files/108th-congress-2003-2004/reports/06-21-samesexmarriage.pdf

Crimmel, B.L. 2011. *Self-Insured Coverage in Employer-Sponsored Health Insurance for the Private Sector, 2000 and 2010*. Rockville, MD: Agency for Healthcare Research and Quality. Statistical Brief 339.

Currie, J. and J. Gruber. 1996a. "Health Insurance Eligibility, Utilization of medical Care, and Child Health." *Quarterly Journal of Economics* 111(2): 431-466.

Currie, J. and J. Gruber. 1996b. "Saving Babies: The Efficacy and Cost of Recent Expansions of Medicaid Eligibility for Pregnant Women." *Journal of Political Economy* 104(6): 1263-1296.

Davern, M., B.C. Quinn, G.M. Kenney, and L.A. Blewett. 2009. "The American Community Survey and Health Insurance Coverage Estimates: Possibilities and Challenges for Health Policy Researchers." *Health Services Research* 44(2): 593-605.

Defense of Marriage Act, Pub. L. 104-199, 1 USC §7 and 28 USC §1738C (1996).

DeMaio, T.J. and N. Bates. 2012. "New Relationship and Marital Status Questions: A Reflection of Changes to the Social and Legal Recognition of Same-Sex Couples in the U.S." Washington, DC: US Census Bureau. Survey Methodology #2012-02.

DeMaio, T.J., N. Bates, and M. O'Connell. 2013. "Exploring Measurement Error Issues in Reporting of Same-Sex Couples." *Public Opinion Quarterly* 77: 145-158.

DeNavas-Walt, C., B.D. Proctor, J.C. Smith. 2012. *Income, Poverty, and Health Insurance Coverage in the United States: 2011*. Washington, DC: US Bureau of Census. P60-243.

DeSilver, D. 2013. "How Many Same-Sex Marriages in the U.S.? At Least 71,165, Probably More" [accessed August 15, 2015]. Washington, DC: Pew Research

Center. Available at: http://www.pewresearch.org/fact-tank/2013/06/26/how-many-same-sex-marriages-in-the-u-s-at-least-71165-probably-more/
Dillender, M. 2014. "Health Insurance and Labor Force Participation: What Legal Recognition Does for Same-Sex Couples." *Contemporary Economic Policy* Online First: 1-13.
Dowd, B.E. and R. Town. 2002. *Does X Really Cause Y?* Washington, DC: Academy Health.
Dowd, B.E. 2011. "Separated at birth: statisticians, social scientists, and causality in health services research." *Health Services Research*, 46(2): 397-420.
Dubay, L. and G. Kenney. 1997. "Did Medicaid Expansions for Pregnant Women Crowd Out Private Coverage?" *Health Affairs* 16(1): 185-193.
DuGoff, E.H., M. Schuler, and E.A. Stuart. 2014. "Generalizing Observational Study Results: Applying Propensity Score Methods to Complex Surveys." *Health Services Research* 49(1): 284-303.
Employee Retirement Income Security Act, 29 USC §1002 (1974).
Fairbrother G.L., A.C. Carle, A. Cassedy and P.W. Newacheck. 2010. "The Impact of Parental Job Loss on Children's Health Insurance Coverage." *Health Affairs* 29:1343-1349.
The Fenway Institute. 2013. 25 States Have Included Sexual Orientation Items in the Behavioral Risk Factor Surveillance System (BRFSS). Available at: http://lgbtpopulationcenter.org/2013/07/25-states-have-included-sexual-orientation-items-in-the-brfss/
Flores, G., L. Olson, and S.C. Tomany-Korman. 2005. "Racial and Ethnic Disparities in Early Childhood Health and Health Care." *Pediatrics* 115: e183-e193.
Gallo, J.J., K.H. Morales, H.R. Bogner, P.J. Raue, J. Zee, M.L. Bruce and C.F. Reynolds. 2013. "Long term Effect of Depression Care Management on Mortality in Older Adults: Follow-up of Cluster Randomized Clinical Trial in Primary Care." *British Medical Journal* 346: 1-10.
Garrett, J.R., J.D. Lantos. 2013. "Marriage and the Well-Being of Children." *Pediatrics* 131:559-536.
Gates, G. 2010. "Same-Sex Couples in US Census Bureau Data: Who Gets Counted and Why" [accessed on September 30, 2014]. Los Angeles, CA: The Williams Institute. Available at: http://williamsinstitute.law.ucla.edu/wp-content/uploads/Gates-Who-Gets-Counted-Aug-2010.pdf
Gates, G. 2013. "LGBT Parenting in the United States" [accessed on March 18, 2013]. Los Angeles, CA: The Williams Institute. Available at: http://williamsinstitute.law.ucla.edu/wp-content/uploads/LGBT-Parenting.pdf
Gates, G. and M.D. Steinberger. 2009. "Same-Sex Unmarried Partner Couples in the American Community Survey: The Role of Misreporting, Miscoding and Misallocation." Paper presented at the Annual Meeting of the Population Association of America; April 30, 2009; Detroit, MI.
Gelberg L., R.M. Andersen, B.D. Leake. 2000. "The Behavioral Model for Vulnerable populations: Application to medical Care Use and Outcomes for Homeless People." *Health Services Research* 34(6): 1273-1302.

U.S. Government Accounting Office. 2004. “Defense of Marriage Act: Update to Prior Report. Letter from Dayna Shah to Bill Frist” [accessed on September 4, 2015]. Available at: http://www.gao.gov/new.items/d04353r.pdf

Gonzales, G. and L.A. Blewett. 2014. “National and State-Specific health Insurance Disparities for Adults in Same-Sex Relationships.” *American Journal of Public Health* 104: e95-e104.

Gonzales, G. and L.A. Blewett. 2013. “Disparities in Health Insurance Among Children with Same-Sex Parents.” *Pediatrics* 132(4):703-711.

Gonzales, G., R. Moltz, and M. King. 2014. “Health Insurance Coverage for Same-Sex Couples: Disparities and Trends under DOMA.” In *Health Care Disparities and the LGBT Population*. Ed. Harvey, V.L. and T.H. Housel. Lanham, MD: Lexington Books.

Gonzales, G. and K. Ortiz. 2015. “Health Insurance Disparities among Racial and Ethnic Minorities in Same-Sex Relationships: An Intersectional Approach.” *American Journal of Public Health*.

Goodridge v. Department of Public Health. 2003. 798 N.E.2d 941 (Mass 2003).

Graubard, B.I. and E.L. Korn. 1999. “Predictive Margins with Survey Data.” *Biometrics* 55: 652-659.

Gray, V. 1973. “Innovation in the States: A Diffusion Study.” *The American Political Science Review* 67(4): 1174-1185.

Grossback, L.J, S. Nicholson-Crotty, and D.A.M. Peterson. 2004. “Ideology and Learning in Policy Diffusion.” *American Politics Research* 32(5): 521-524.

Gruber J. 1994. “State-Mandated Benefits and Employer-Provided Health Insurance.” *Journal of Public Economics* 55:433-463.

Guendelman, S., H.H. Schauffler and M. Peal. 2001. “Unfriendly Shores: How Immigrant Children Fare in the U.S. Health System.” Health Affairs 20:257-266.

Hacker, J. 2002. *The Divided Welfare State*. Cambridge: Cambridge University Press.

Haider-Markel, D.P. 2001. “Policy Diffusion as a Geographical Expansion of the Scope of Political Conflict: Same-Sex Marriage Bans in the 1990s.” *State Politics & Policy Quarterly* 1(1): 5-26.

Hamersma, S. and M. Kim. 2009. “The Effect of Parental Medicaid Expansions on Job Mobility.” *Journal of Health Economics* 28(4): 761-770.

Halperns v Canada. 2003. O.J. No. 2268.

Hatzenbuehler, M.L. 2009. “How Does Sexual Minority Stigma ‘Get Under the Skin’? A Psychological Mediation Framework.” *Psychological Bulletin* 135(5): 707-30.

Hatzenbuehler, M.L., K.A. McLaughlin, K.M. Keyes, and D.S. Hasin. 2010. “The Impact of Institutional Discrimination on Psychological Disorders in Lesbian, Gay and Bisexual Populations: A Prospective Study.” *American Journal of Public Health* 100: 452-459.

Hatzenbuehler, M.L., C. O’Cleirigh, C. Grasso, K. Mayer, S. Safren, and J. Bradford. 2012. “Effect of Same-Sex Marriage Laws on Health Care Use and Expenditures in Sexual Minority Men: A Quasi-Experimental Experiment.” *American Journal of Public Health* 102: 285-291.

Heck, J.E., R.L. Sell, S.S. Gorin. 2006. “Health Care Access Among Individuals Involved in Same-Sex Relationships.” *American Journal of Public Health* 96: 1111-1118.

Hill, A.B. 1965. "The Environment and Disease: Association or Causation?" *Proceedings of the Royal Society of Medicine*, 58(5): 295-300.
Hofler, M. 2005."The Bradford Hill Considerations on Causality: A Counterfactual Perspective." *Emerging Themes in Epidemiology*, 2(11): 1-9.
Holahan, J.C. 2011. "The 2007-09 Recession and Health Insurance Coverage." *Health Affairs* 30(1): 145-152.
Horwitz, R. 2015. "Usability of the American Community Survey Internet Instrument on Mobile Devices." Washington, DC: U.S. Census Bureau. ACS15-MP-02. Available at: https://www.census.gov/library/working-papers/2015/acs/2015_Horwitz_01.html
Human Rights Campaign. 2013. "Parenting Laws: Second Parent Adoption" [accessed on March 24, 2013]. Available at: http://www.hrc.org/files/assets/resources/parenting_laws_2nd.pdf
Human Rights Campaign. 2014. "Marriage Equality and Other Relationship Recognition Laws." [accessed on September 30, 2014]. Available at: http://hrc-assets.s3-website-us-east-1.amazonaws.com//files/assets/resources/marriage-equality_8-2014.pdf
Institute of Medicine. 1999. *Lesbian Health: Current Assessment and Directions for the Future*. Washington, DC: National Academies Press.
Institute of Medicine. 2011. *The Health of Lesbian, Gay, Bisexual and Transgender People*. Washington, DC: National Academies Press.
Internal Revenue Service. 2010. "Tax Treatment of Health Care Benefits Provided With Respect to Children Under Age 27" [accessed on March 18, 2013]. Washington, DC: Internal Revenue Service. Notice 2010-38. Available at: http://www.irs.gov/pub/irs-drop/n-10-38.pdf.
Janicki, H. 2013. *Employment-Based Health Insurance: 2010*. Washington, DC: US Bureau of Census. P70-134.
Jones, R. 2015. "After Same-Sex Marriage, Then What?" *The Atlantic*, June 24, 2015.
Kail, B.L., K.L. Acosta, and E.R. Wright. 2015. "State-Level Marriage Equality and the Health of Same-Sex Couples." *American Journal of Public Health* 105(6): 1101-1105.
Karch, A. 2007. *Democratic Laboratories: Policy Diffusion Among the American States*. Ann Arbor, MI: The University of Michigan Press.
Kerrigan v. Commissioner of Public Health. 2008. 289 Conn. 135, 957 A.2d 407.
Kickbusch, I. 2013. "Health in All Policies." *The British Medical Journal* 347:1-2.
Kingdon, J. W. 2010. Agendas, Alternatives, and Public Policies, 2nd Edition. New York: Pearson Publishing.
Kim, H.J. and K.I. Fredrisken-Goldsen. 2013. "Nonresponse to a Question on Self-Identified Sexual Orientation in a Public Health Survey and Its Relationship to Race and Ethnicity." *American Journal of Public Health* 103(1): 67-69.
Klawitter, M. 2011. "Multilevel Analysis of the Effects of Antidiscrimination Policies on Earnings by Sexual Orientation." *Journal of Policy Analysis and Management*, 30(2): 334-358.

Kleinman, L.C. and E.C. Norton. 2009. "What's the Risk? A Simple Approach for Estimating Adjusted Risk Measures from Nonlinear Models Including Logistic Regression." *Health Services Research* 44(1): 288-302.

Kousser, T. 2002. "The Politics of Discretionary Medicaid Spending, 1980-1993." *Journal of Health Politics, Policy and Law* 27(4): 639-672.

Krivickas, K.M. and D. Lofquist. 2011. "Demographics of Same-Sex Households with Children." Washington, DC: U.S. Census Bureau. SEHSD Working Paper Number 2011-11.

Kreider, R. M. and D. A. Lofquist. 2015. "Matching Survey Data with Administrative Records to Evaluate Reports of Same-Sex Married Couple Households." Washington, DC: U.S. Census Bureau. SEHSD Working Paper Number 2014-36.

Krieger N. 2001. "Theories for Social Epidemiology in the 21st Century: An Ecosocial Perspective." *International Journal of Epidemiology* 30:668-677.

Krieger, N. 2014. "Got Theory? On the 21st C. CE Rise of Explicit Use of Epidemiologic Theories of Disease Distribution: A Review and Ecosocial Analysis." *Current Epidemiology Reports*1: 45-56.

Lambert, S. 2005. "Gay and Lesbian Families: What We Know and Where to Go From Here." *The Family Journal* 13(1): 43-51.

Lax, J.R. and J.H. Phillips. 2009. "Gay Rights in the States: Public Opinion and Policy Responsiveness." American Political Science Review 103(3): 367-386.

Leshem, S. and V. Trafford. 2007. "Overlooking the Conceptual Framework." *Innovations in Education and Teaching International* 44(1): 93-105.

Lewis, G.B. 2005. "Same-Sex Marriage and the 2004 Presidential Election." PSOnline April: 195-199.

Lewis, G.B. and S. Soo Oh. 2008. "Public Opinion and State Action on Same-Sex Marriage." *State & Local Government Review* 40(1): 42-53.

Lewis, D.C. 2011. "Direct Democracy and Minority Rights: Same-Sex Marriage Bans in the U.S. States." *Social Science Quarterly* 92(2): 364-383.

Lewis, J.M. 2014. "Testing Alternative Relationship and Marital Status Questions on the 2013 American Community Survey-Questionnaire Design Test: Final Report." Washington, D.C.: U.S. Census Bureau. Available at: https://www.census.gov/library/working-papers/2014/acs/2014_Lewis_01.html

Lewis, J. M., N. Bates, and M. Streeter. 2015. "Measuring Same-Sex Couples: The What and Who of Misreporting of Relationship and Sex." Washington, D.C.: U.S. Census Bureau. SEHSD Working Paper Number 2015-12.

Levy, H. and D. Meltzer. 2008. "The Impact of Health Insurance on Health." *Annual Review of Public Health* 29: 399-409.

Lofquist, D. 2011. *Same-Sex Couple Households*. Washington, DC: US Census Bureau. Publication ACSBR/10-03. Available at: https://www.census.gov/prod/2011pubs/acsbr10-03.pdf

Lofquist, D., T. Lugalia, M. O'Conell, and S. Feliz. 2012. *Households and Families: 2010*. Washington, DC: U.S. Census Bureau. 2010 Census Briefs C2010BR-14.

Lofquist, D. A. and J.M. Lewis. 2015. "Improving Measurement of Same-Sex Couples." Washington, D.C.: U.S. Census Bureau. SEHSD Working Paper 2015-13. Presented at the Annual Meeting of the Population Association of America, Boston, MA, May 1-3, 2014. Available at: https://www.census.gov/hhes/samesex/files/Lofquist_Lewis_2015-13.pdf

Long, S.K., S. Zuckerman and J.A. Graves. 2006. "Are Adults Benefiting from State Coverage Expansions?" *Health Affairs* 25(2):w1-w14.

Long, S.K. and K. Stockley.2011. "The Impacts of State Health Reform Initiatives on Adults in New York and Massachusetts." *Health Services Research* 46(1): 365-387.

Lo Sasso, A. and T.C. Buchmueller. "The Effect of the State Children's Health Insurance Program on Health Insurance Coverage." *Journal of Health Economics* 23(5): 1059-1082.

Lucas, R.M. and A.J. McMichael. 2005. "Association or causation: evaluating links between 'environment and disease'" *Bulletin of the World Health Organization*, 83(10): 792-795.

Lupia, A., Y. Krupnikov, A.S. Levine, S. Piston, and A. Von Hagen-Jamar. 2010. "Why State Constitutions Differ in their Treatment of Same-Sex Marriage." *The Journal of Politics* 72(4): 1222-1235.

Manning, W.D., K.A. Lamb. 2003. "Adolescent Well-Being in Cohabitating, Married, and Single-Parent Families." *Journal of Marriage and Family* 65:876-893.

Martinez v. County of Monroe. 50 A.D.3d 189; 850 N.Y.S.2d 740.

Marriage Equality Act. 2011. New York AB A08354.

McCarthy J. 2015. "Record-High 60% if Americans Support Same-Sex Marriage." Gallup. [Accessed on June 12, 2015]. Available at: http://www.gallup.com/poll/183272/record-high-americans-support-sex-marriage.aspx

Meyer, B.D. 1995. "Natural and quasi-experiments in economics." *Journal of Business & Economic Statistics*, 13(2): 151-161.

Meyer, I.H. 1995. "Minority Stress and Mental Health in Gay Men." *Journal of Health and Social Behavior* 36: 38-56.

Meyer, I.H. 2003. "Prejudice, Social Stress, and Mental Health in Lesbian, Gay and Bisexual Populations: Conceptual Issues and Research Evidence. *Psychological Bulletin* 129: 674-697.

Miller, S. and L.R. Wherry. 2015. "The Long-Term Health Effects of Early Life Medicaid Coverage" [accessed September 4, 2015]. Available at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2466691

Mintrom, M. 1997. "Policy Entrepreneurs and the Diffusion of Innovation." *American Journal of Political Science* 41(3): 738-770.

Monheit, A.C., J.C. Cantor, D. DeLia, and D. Belloff. 2011. "How Have State Policies to Expand Dependent Coverage Affected the Health Insurance Status of Young Adults?" *Health Services Research* 46(1): 251-267.

National Conference of State Legislatures. 2013. *Defining Marriage: Defense of Marriage Acts and Same-Sex Marriage Laws* [accessed on March 25, 2013].

Available at: http://www.ncsl.org/issues-research/human-services/same-sex-marriage-overview.aspx.
National Gay and Lesbian Task Force. 2013. "Second-Parent Adoption in the United States" [accessed on March 18, 2013]. Available at: http://www.outfront.org/files/pg332/Secondparentadoption.pdf.
Newacheck, P.W., C.D. Brindis, C.U. Cart, K. Marchi and C.E. Irwin. 1999. "Adolescent Health Insurance Coverage: Recent Changes and Access to Care." *Pediatrics* 104:195-202
New York City Department of City Planning. 2015. Current Population Estimates. Available at: http://www.nyc.gov/html/dcp/html/census/popcur.shtml
NeJaime, D. 2013. "Framing (In)Equality for Same-Sex Couples." *UCLA Law Review Discourse* 60: 184-199.
Norton, E.C., M.M. Miller and L.C. Kleinman. 2001. "Computing adjusted risk ratios and risk differences in Stata." *The Stata Journal* 13(3): 492-509.
Obergefell v. Hodges, 576 U.S. (2015).
O'Connell, M. and S. Feliz. 2011. "Same-sex Couple Household Statistics." Washington, DC: U.S. Census Bureau. SEHSD Working Paper Number 2011-26. Available at: http://www.census.gov/hhes/samesex/data/acs.html
O'Connell, M and G. Gooding. 2006. "Editing unmarried couples in Census Bureau Data." Paper presented at the Annual Meeting of the Population Association of America; March 30, 2006; Los Angeles, CA. Available at: http://www.census.gov/hhes/samesex/data/acs.html
O'Connell, M. and D. Lofquist. "Changes to the American Community Survey Between 2007 and 2008 and their Potential Effect on the Estimates of Same-Sex Couple Households." Washington, D.C.: U.S. Census Bureau. Available at: https://www.census.gov/hhes/samesex/files/changes-to-acs-2007-to-2008.pdf
O'Connell, M., L. Lofquist, T. Simmons, and T. Lugaila. 2010. "New Estimates of the Same-Sex Couple Households from the American Community Survey." Washington, D.C.: U.S. Census Bureau. Available at: https://www.census.gov/hhes/samesex/files/SS_new-estimates.pdf
O'Hara and M.W. Brault. 2013. "The Disparate Impact of the ACA-Dependent Expansion Across Population Subgroups." *Health Services Research* 48(5): 1581-1592.
Olson, L.M., S.S. Tang and P.W. Newacheck. 2005. "Children in the United States with Discontinuous Health Insurance Coverage." *New England Journal of Medicine* 353: 382-391.
Mach, A. and B. O'Hara. 2011. "Do People Really Have Multiple Health Insurance Plans? Estimates of Nongroup Health Insurance in the American Community Survey." SEHSD Woking Paper 2011-28. Washington, DC: U.S. Census Bureau.
Mercer. 2013. "Mercer's National Survey of Employer-Sponsored Health Plans." Available at: http://benefitcommunications.com/upload/downloads/Mercer_Survey_2013.pdf

Patterson, C.J. 1992. “Children of Lesbian and Gay Parents.” *Child Development* 63(5):1025-1042.
Patterson, C.J. 2006. “Children of Lesbian and Gay Parents.” *Current Directions in Psychological Science* 15(5): 241-244.
Patterson, C.J. 2009. “Children of Lesbian and Gay Parents: Psychology, Law and Policy.” *American Psychologist* 64(8): 727-736.
Pawelski, J.G., E.C. Perrin, J.M. Foy, C.E. Allen, et al. 2006. “The Effects of Marriage, Civil Union, and Domestic Partnership Laws on the Health and Well-Being of Children.” *Pediatrics* 118:349-364.
Phelan, J.C., B.G. Link and P. Tehranifar. 2010. “Social Conditions as Fundamental Causes of Health Inequalities: Theory, Evidence, and Policy Implications.” *Journal of Health and Social Behavior* 51 Supplement: S28-S40.
Perrin, E.C. and Committee on Psychological Aspects of Child and Family Health. 2002. “Technical Report: Coparent or Second-Parent Adoption by Same-Sex Parents.” *Pediatrics* 109:341-344.
Perrin, E.C., B.S. Siegel and the Committee on Psychological Aspects of Child and Family Health. 2013. “Technical Report: Promoting the Well-Being of Children Whose Parents are Gay or Lesbian.” *Pediatrics* 131:e1374-e1383.
Pew Research Center. 2010. “The Decline of Marriage and Rise of New Families” [accessed September 28, 2015]. Washington, DC: The Pew Research Center for the People & the Press. Available at: http://www.pewsocialtrends.org/files/2010/11/pew-social-trends-2010-families.pdf
Pew Research Center. 2013. “In Gay Marriage Debate, Both Supporters and Opponents See legal Recognition as ‘Inevitable.’” Washington, DC: The Pew Research Center for the People & the Press.
Phillips, K.A., K.R. Morrison, R. Andersen and L.A. Aday. 1998. “Understanding the Context of Healthcare Utilization: Assessing Environmental and Provider-Related Variables in the Behavioral Model of Utilization.” *Health Services Research* 33(3): 571-596.
Pierson, P. 1993. “When Effect Becomes Cause: Policy Feedback and Political Change.” *World Politics* 45(4): 595-628.
Ploeg, M.V. 2009. “Do Benefits of U.S. Food Assistance Programs for Children Spillover to Older Children in the Same Household?” Journal of Family and Economic Issues 30:412-427.
Ponce, N.A., S.D. Cochran, J.C. Pizer, and V.M. Mays. 2010. “The Effects of Unequal Access to Health Insurance for Same-Sex Couples in California.” *Health Affairs* 29(8):1539-1548.
Potter, D. 2012. “Same-Sex Parent Families and Children’s Academic Achievement.” *Journal of Marriage and Family* 74(3): 556-571.
Powers, R., D. Beede and R. Telles, Jr. 2015. *The Value of the American Community Survey: Smart Government, Competitive Business, and Informed Citizens.* Washington, DC: Economics and Statistics Administration. Available at: http://www.esa.gov/sites/default/files/the-value-of-the-acs.pdf

Reczek, C. and D. Umberson. 2012. "Gender, Health Behavior, and Intimate Relationships: Lesbian, Gay and Straight Contexts." *Social Science & Medicine* 74: 1783-1790.

Robert Wood Johnson Foundation. 2010. A New Way to Talk About the Social Determinants of Health [accessed September 4, 2015]. Available at: http://www.rwjf.org/content/dam/farm/reports/reports/2010/rwjf63023

Robert Wood Johnson Foundation DataHub. 2015. Available at: http://www.rwjf.org/en/how-we-work/rel/research-features/rwjf-datahub/national.html

Roe v. Empire Blue Cross Blue Shield. 2015. No. 14-1759-CV.

Rogers, E.M. 1962. *Diffusion of Innovations*. New York, NY: The Free Press.

Rudolph, L., J. Caplan, K., Ben-Moshe and L. Dillon. 2013. Health in All Policies: A Guide for State and Local Governments. Washington, DC and Oakland, CA: American Public Health Association and Public Health Institute.

Sabatier, P. A. and C.M. Weible. 2014. *Theories of the Policy Process*, 3rd Edition. Boulder, CO: Westview Press.

Schneider, A.L., H. Ingram and P. deLeon. 2014. "Democratic Policy Design: Social Construction of Target Populations." In Theories of the Policy Process, 3rd edition, edited by P.A. Sabatier and C.M. Weible, pp. 105-150. Boulder, CO: Westview Press.

Schneider, A.K. and H. Ingram. 1990. "Behavioral Assumptions of Policy Tools." *The Journal of Politics* 52(2): 510-529.

Schuster, M.A., R.Collins, W.E. Cunningham, S.C. Morton, S. Zierler, M. Wong, W. Tu, D. E. Kanouse. 2005. "Perceived Discrimination in Clinical Care in a Nationally Representative Sample of HIV-Infected Adults Receiving Health Care." *Journal of General Internal Medicine* 20(9): 807-813.

Sexual Minority Assessment Research Team (SMART). 2009. "Best Practices for Asking Questions about Sexual Orientation on Surveys." Los Angeles, CA: The Williams Institute. Available at: http://williamsinstitute.law.ucla.edu/research/census-lgbt-demographics-studies/best-practices-for-asking-questions-about-sexual-orientation-on-surveys

Shadish, W.R., T.D. Cook and D.T. Campbell. 2002. *Experimental and Quasi-Experimental Designs for Generalized Causal Inference*. New York, NY: Houghton Mifflin Company.

Shen Y., Zuckerman, S. 2003. "Why is There State Variation in Employer-Sponsored Insurance?" Health Affairs 22: 241-251.

Shipan, C.R. and C. Volden. 2006. "Bottom-Up Federalism: The Diffusion of Antismoking Policies from U.S. Cities to States." *American Journal of Political Science* 50(4): 825-843.

Shipan, C.R. and C. Volden. 2008. "The Mechanisms of Policy Diffusion." *American Journal of Political Science* 52(4): 840-857.

Shipan, C.R. and C. Volden. 2012."Policy Diffusion: Seven Lessons for Scholars and Practitioners." *Public Administration Review* 72(6): 788-796.

Shone, L.P., A.W. Dick, J.D. Klein, J. Zwanziger, and P.G. Szilagyi. 2005. "Reduction in Racial and Ethnic Disparities After Enrollment in the State Children's Health Insurance Program." *Pediatrics* 115: e697-e705.

Silverman, R.E. 2015. "Firms Tell Gay Couples: Wed or Lose Your Benefits." *The Wall Street Journal.*

Smith, D.A., M. DeSantis, and J. Kassel.2006. "Same-Sex Marriage Ballot Measures and the 2004 Presidential Election." *State & Local Government Review* 38(2): 78-91.

Smith, M. 2007. "Framing Same-Sex Marriage in Canada and the United States: Goodridge, Halpern and the National Boundaries of Political Discourse." *Social & Legal Studies* 16(1): 5-26.

Solar O. and A. Irwin. 2010. *A Conceptual Framework for Action on the Social Determinants of Health*. Social Determinants of Health Discussion Paper 2 (Policy and Practice).

Sommers, B., T. Buchmueller, S. L. Decker, C. Carey and R. Kronick. 2013. "The Affordable Care Act has led to Significant Gains in Health Insurance and Access To Care for Young Adults." *Health Affairs*, 32(2): 165-174.

Sommers, B.D., G. M. Kenney and A.M. Epstein. 2014. "New Evidence on the Affordable Care Act: Coverage Impacts of Early Medicaid Expansions." *Health Affairs* 33(1): 78-87.

Soule, S.A. 2004. "Going to the Chapel? Same-Sex Marriage Bans in the United States, 1973-2000." *Social Problems* 51(4): 453-477.

Soss, J., S.F. Schram, T.P. Vartanian, and E. O'Briend. 2001. "Settling the Terms of Relief: Explaining State Policy Choices in the Devolution Revolution." *American Journal of Political Science* 45(2): 378-395.

State Health Access Data Assistance Center (SHADAC). 2013. "State-Level Trends in Employer-Sponsored Health Insurance." SHADAC Report. Minneapolis, MN: University of Minnesota.

StataCorp. 2011. Stata: Release 12. Statistical Software. College Station, TX: StataCorp LP.

Stata Consulting Group. 2015. Stata Annotated Output: Multinomial Logistic Regression [accessed September 1, 2015]. Available at: http://www.ats.ucla.edu/stat/stata/output/stata_mlogit_output.htm

Theriault, S.M. and H.F. Thomas. 2014. "The Diffusion of Support for Same-Sex Marriage in the US Senate." *PS: Political Science & Politics* 47(4): 824-828.

United States v. Windsor, 133 S. Ct. 2675 (2013).

Umberson, D. 1992. "Gender, Marital Status and the Social Control of Health Behavior." *Social Science & Medicine* 34(8): 907-917.

U.S. Census Bureau. 2009. *Your Guide for the American Community Survey*. Washington, DC: US Census Bureau. Publication ACS-30(2009)(8-2008).

U.S. Census Bureau. 2011. American Community Survey Public Use Microdata Sample (PUMS) 3-year file, 2008-2010. Prepared by the U.S. Census Bureau, 2011.

U.S. Census Bureau. 2013. ACS Health Insurance Definitions [accessed on January 23, 2013]. Available at: http://www.census.gov/hhes/www/hlthins/methodology/definitions/acs.html

U.S. Census Bureau. 2014. *Design and Methodology Report*. Washington, DC: U.C. Census Bureau. Available at: http://www.census.gov/programs-surveys/acs/methodology/design-and-methodology.html

U.S. Census Bureau. 2014. "Same-Sex Married Couples Edit Change in 2013 ACS PUMS Files." Washington, DC: U.S. Census Bureau. Available at: https://www.census.gov/programs-surveys/acs/technical-documentation/user-notes/2013-03.html

U.S. Census Bureau. 2015. State and Country Quick Facts: New York. Washington, DC: U.S. Census Bureau. Available at: http://quickfacts.census.gov/qfd/states/36000.html

U.S. Department of Labor. Local Area Unemployment Statistics. Washington, DC: Bureau of Labor Statistics. Available at: http://www.bls.gov/lau/

U.S. General Accounting Office. 2004. Defense of Marriage Act: Update to Prior Report [accessed on August 28, 2015]. Available at: http://www.gao.gov/new.items/d04353r.pdf

Virgile, M. 2011. "Measurement Error in the Relationship Status of Same-Sex Couples in the 2009 American Community Survey: Final Report." Washington, DC: U.S. Census Bureau. ACS11-RER-10. Available at: https://www.census.gov/library/working-papers/2011/acs/2011_Virgile_01.html

Volden, C. 2006. States as Policy Laboratories: Emulating Success in the Children's Health Insurance Program. *American Journal of Political Science* 50(2): 294-312.

Ward, B.W., J.M. Dahlhamer, A.M. Galinksy and S. Joestl. 2014. "Sexual Orientation and Health Among U.S. Adults: National Health Interview Survey, 2013." Bethesda, MD: National Center for Health Statistics. Available at: http://www.cdc.gov/nchs/data/nhsr/nhsr077.pdf

Warren, D.M. and K.R. Bloch. 2014. "Framing same-sex marriage: Media constructions of California's Proposition 8." *The Social Science Journal* 51:503-513.

Weissert, C.S. and D. Scheller. 2008. "Learning from the States? Federalism and National Health Policy." *Public Administration Review*68(s1): S162-S174.

Wood, R.G., B. Goesling, and S. Avellar. 2007. *The Effects of Marriage on Health: A Synthesis of Recent Research Evidence*. Washington, DC: Mathematica Policy Research, Inc.

Wight, R. G., A.J. Leblanc, M.V.L. Badgett. 2012. "Same-Sex Legal Marriage and Psychological Well-Being: Findings from the California Health Interview Survey." *American Journal of Public Health* 103: 339-346.

Zahariadis, N. 2014. "Ambiguity and Multiple Streams." In Theories of the Policy Process, 3rd edition, edited by P.A. Sabatier and C.M. Weible, pp. 25-58. Boulder, CO: Westview Press.

Zuvekas, S.H. and G.S. Taliaferro. 2003. "Pathways to Access: Health Insurance, the Health Care Delivery System, and Racial/Ethnic Disparities, 1996-1999." *Health Affairs* 22(2): 139-53.